

Figure 1

Publication	PECVD Reaction	Doped Concentration	Treatment Temperature
Valette S., 1987	Unknown	P doping	Not specified
Valette S., 1988	Unknown	P doping	400°C
Grand G., 1990	Unknown	P doping	1000°C
Liu K., 1995	Unknown	Content in Si, P	Not specified
Ojha S., 1998	Unknown	Ge, B, or P doping	Not specified
Canning J., 1998	Unknown	Ge doping	Not specified
Bulla D., 1998	TEOS	TEOS	Not specified
Johnson C., 1998	$\text{SiH}_4 + \text{O}_2$	Si ion Implantation	400°C
Boswell R. W., 1997	$\text{SiH}_4 + \text{O}_2$	SiH_4/O_2 flow ratio	1000°C
Bazylenko M. V., 1995	$\text{SiH}_4 + \text{O}_2 + \text{CF}_4$	$(\text{SiH}_4 + \text{O}_2)/\text{CF}_4$ flow ratio	Not specified
Bazylenko M. V., 1996	$\text{SiH}_4 + \text{O}_2 + \text{CF}_4$	$(\text{SiH}_4 + \text{O}_2)/\text{CF}_4$ flow ratio	1000°C
Durandet A., 1996	$\text{SiH}_4 + \text{O}_2 + \text{CF}_4$	$\text{SiH}_4/\text{O}_2/\text{CF}_4$ flow ratio	100°C
Kapser K., 1991	$\text{SiH}_4 + \text{N}_2\text{O}$	$\text{SiH}_4/\text{N}_2\text{O}$ flow ratio	1060°C
Lai Q., 1992	$\text{SiH}_4 + \text{N}_2\text{O}$	$\text{SiH}_4/\text{N}_2\text{O}$ flow ratio	1100°C
Lai Q., 1993	$\text{SiH}_4 + \text{N}_2\text{O}$	$\text{SiH}_4/\text{N}_2\text{O}$ flow ratio	1100°C
Pereyra I., 1997	$\text{SiH}_4 + \text{N}_2\text{O}$	$\text{SiH}_4/\text{N}_2\text{O}$ flow ratio	400°C
Alayo M., 1998	$\text{SiH}_4 + \text{N}_2\text{O}$	$\text{SiH}_4/\text{N}_2\text{O}$ flow ratio	1000°C
Kenyon T., 1997	$\text{SiH}_4 + \text{N}_2\text{O} + \text{Ar}$	$\text{SiH}_4/\text{N}_2\text{O}/\text{Ar}$ flow ratio	1000°C
Lam D. K. W., 1984	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3$ flow ratio	Not specified
Bruno F., 1991	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3$ flow ratio	1100°C
Yokohama S., 1995	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3$ flow ratio	Not specified
Agnihotri O. P., 1997	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3$ flow ratio	700-900°C
Germann R., 1999	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3$	Unknown	1100°C
Offrein B., 1999	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3$	Unknown	1150°C
Hoffmann M., 1995	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3 + \text{Ar}$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3/\text{Ar}$ flow ratio	Not specified
Hoffmann M., 1997	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3 + \text{Ar}$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3/\text{Ar}$ flow ratio	Not specified
Tu Y., 1995	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3 + \text{N}_2$	$\text{N}_2\text{O}/(\text{N}_2\text{O} + \text{NH}_3)$ flow ratio	1050°C
Poenar D., 1997	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3 + \text{N}_2$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3/\text{N}_2$ flow ratio	850°C
Ridder R., 1998	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3 + \text{N}_2$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3/\text{Ar}$ flow ratio	1100°C
Worhoff K., 1999	$\text{SiH}_4 + \text{N}_2\text{O} + \text{NH}_3 + \text{N}_2$	$\text{SiH}_4/\text{N}_2\text{O}/\text{NH}_3/\text{N}_2$ flow ratio	1150°C
Bulat E.S., 1993	$\text{SiH}_4 + \text{N}_2\text{O} + \text{N}_2 + \text{O}_2 + \text{He} + \text{CF}_4$	$\text{SiH}_4/(\text{N}_2\text{O}/\text{N}_2)/\text{O}_2/\text{CF}_4$ flow ratio	425°C
This Patent Application	$\text{SiH}_4 + \text{N}_2\text{O} + \text{PH}_3 + \text{N}_2$	Patented Pending Method	650°C

Figure 2

	H-O-H	S-O-H	N-H-S	H-N-S	S-H	O=S	N=N	S=O	O=S	S=O	N-O-S	O-H-S	S=O	S=O-S
Min	3550	3470	3380	3300	2210	1800	1530	1080	1000	910	860	740	410	
Ave	3650	3510	3420	3380	2260	1875	1555	1180	1080	950	885	810	460	
Max	3750	3550	3460	3460	2310	1950	1580	1280	1160	990	910	880	510	
Min	2.817	2.882	2.959	3.030	4.525	5.556	6.536	9.259	10.000	10.989	11.628	13.514	24.390	
Ave	2.740	2.849	2.924	2.959	4.425	5.333	6.431	8.475	9.259	10.526	11.299	12.346	21.739	
Max	2.667	2.817	2.890	2.890	4.329	5.128	6.329	7.813	8.621	10.101	10.989	11.364	19.608	
Min	1.408	1.441	1.479	1.515	2.262	2.778	3.268	4.630	5.000	5.495	5.814	6.757	12.195	
Ave	1.370	1.425	1.462	1.479	2.212	2.667	3.215	4.237	4.630	5.263	5.650	6.173	10.870	
Max	1.333	1.408	1.445	1.445	2.165	2.564	3.165	3.906	4.310	5.051	5.495	5.682	9.804	
Min	0.939	0.961	0.986	1.010	1.508	1.852	2.179	3.086	3.333	3.663	3.876	4.505	8.130	
Ave	0.913	0.950	0.975	0.986	1.475	1.778	2.144	2.825	3.086	3.509	3.766	4.115	7.246	
Max	0.889	0.939	0.963	0.963	1.443	1.709	2.110	2.604	2.874	3.367	3.663	3.788	6.536	
Min	0.704	0.720	0.740	0.758	1.131	1.389	1.634	2.315	2.500	2.747	2.907	3.378	6.098	
Ave	0.685	0.712	0.731	0.740	1.106	1.333	1.608	2.119	2.315	2.632	2.825	3.086	5.435	
Max	0.667	0.704	0.723	0.723	1.082	1.282	1.582	1.953	2.155	2.525	2.747	2.841	4.902	
Min	0.563	0.576	0.592	0.606	0.905	1.111	1.307	1.852	2.000	2.198	2.326	2.703	4.878	
Ave	0.548	0.570	0.585	0.592	0.885	1.067	1.286	1.695	1.852	2.105	2.260	2.469	4.348	
Max	0.533	0.563	0.578	0.578	0.866	1.026	1.266	1.563	1.724	2.020	2.198	2.273	3.922	
Min	0.469	0.480	0.493	0.505	0.754	0.926	1.089	1.543	1.667	1.832	1.938	2.252	4.065	
Ave	0.457	0.475	0.487	0.493	0.737	0.889	1.072	1.412	1.543	1.754	1.883	2.058	3.623	
Max	0.444	0.469	0.482	0.482	0.722	0.855	1.055	1.302	1.437	1.684	1.832	1.894	3.268	
Min	0.402	0.412	0.423	0.433	0.646	0.794	0.934	1.323	1.429	1.570	1.661	1.931	3.484	
Ave	0.391	0.407	0.418	0.423	0.632	0.762	0.919	1.211	1.323	1.504	1.614	1.764	3.106	
Max	0.381	0.402	0.413	0.413	0.618	0.733	0.904	1.116	1.232	1.443	1.570	1.623	2.801	
Min	0.352	0.360	0.370	0.379	0.566	0.694	0.817	1.157	1.250	1.374	1.453	1.689	3.049	
Ave	0.342	0.356	0.365	0.370	0.553	0.667	0.804	1.059	1.157	1.316	1.412	1.543	2.717	
Max	0.333	0.352	0.361	0.361	0.541	0.641	0.791	0.977	1.078	1.263	1.374	1.420	2.451	

Figure 3a

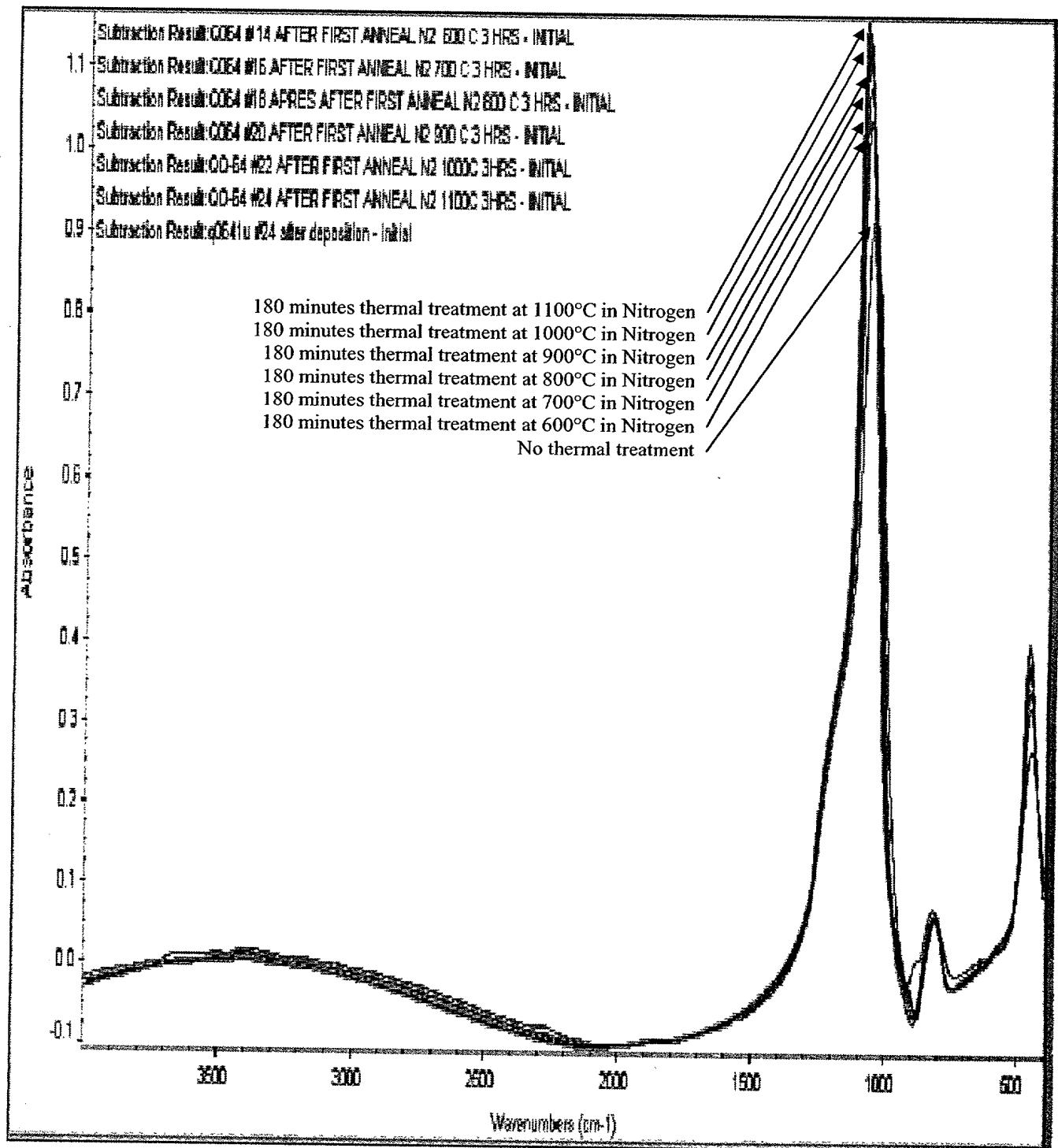


Figure 3b

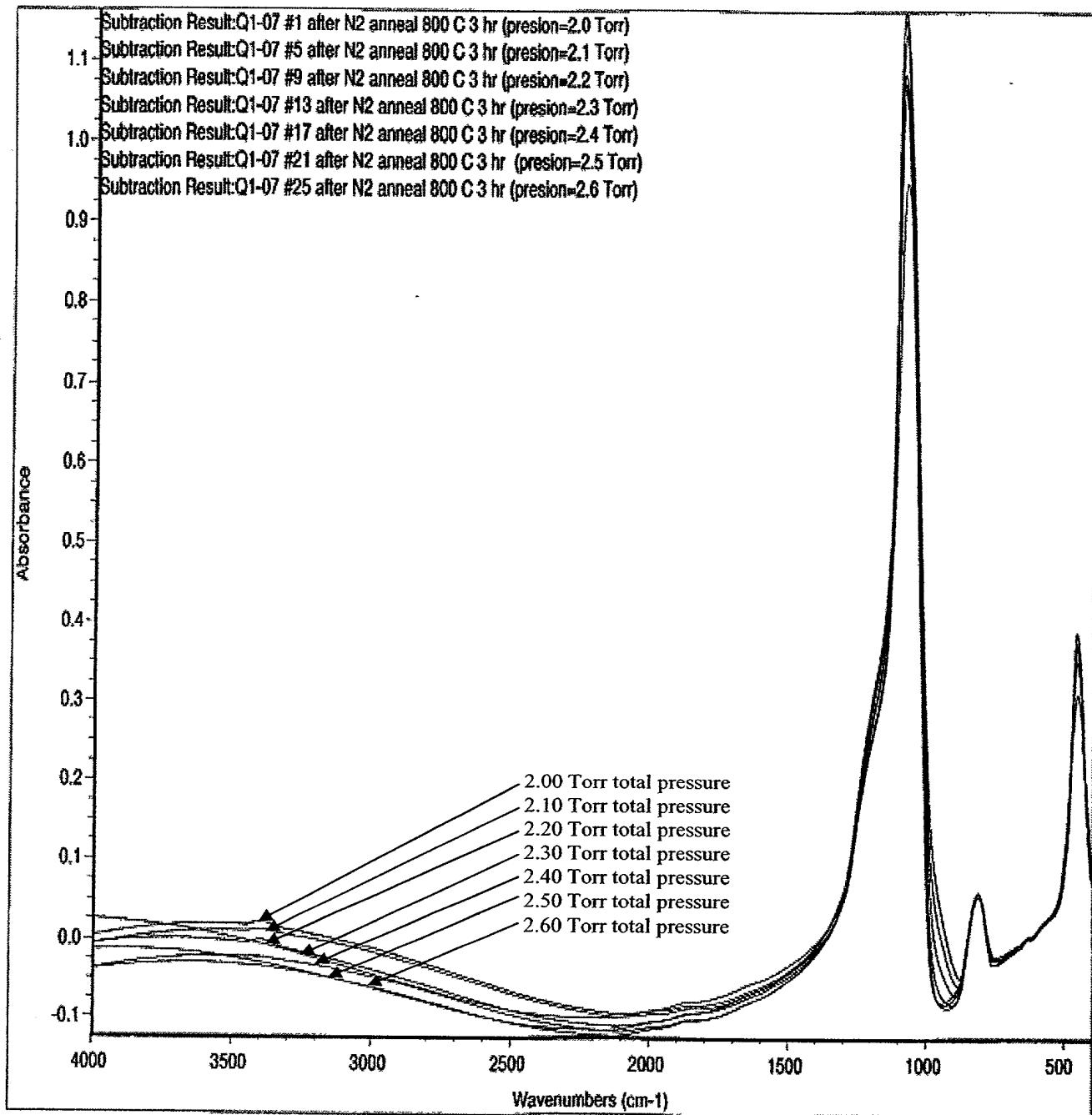


Figure 3c

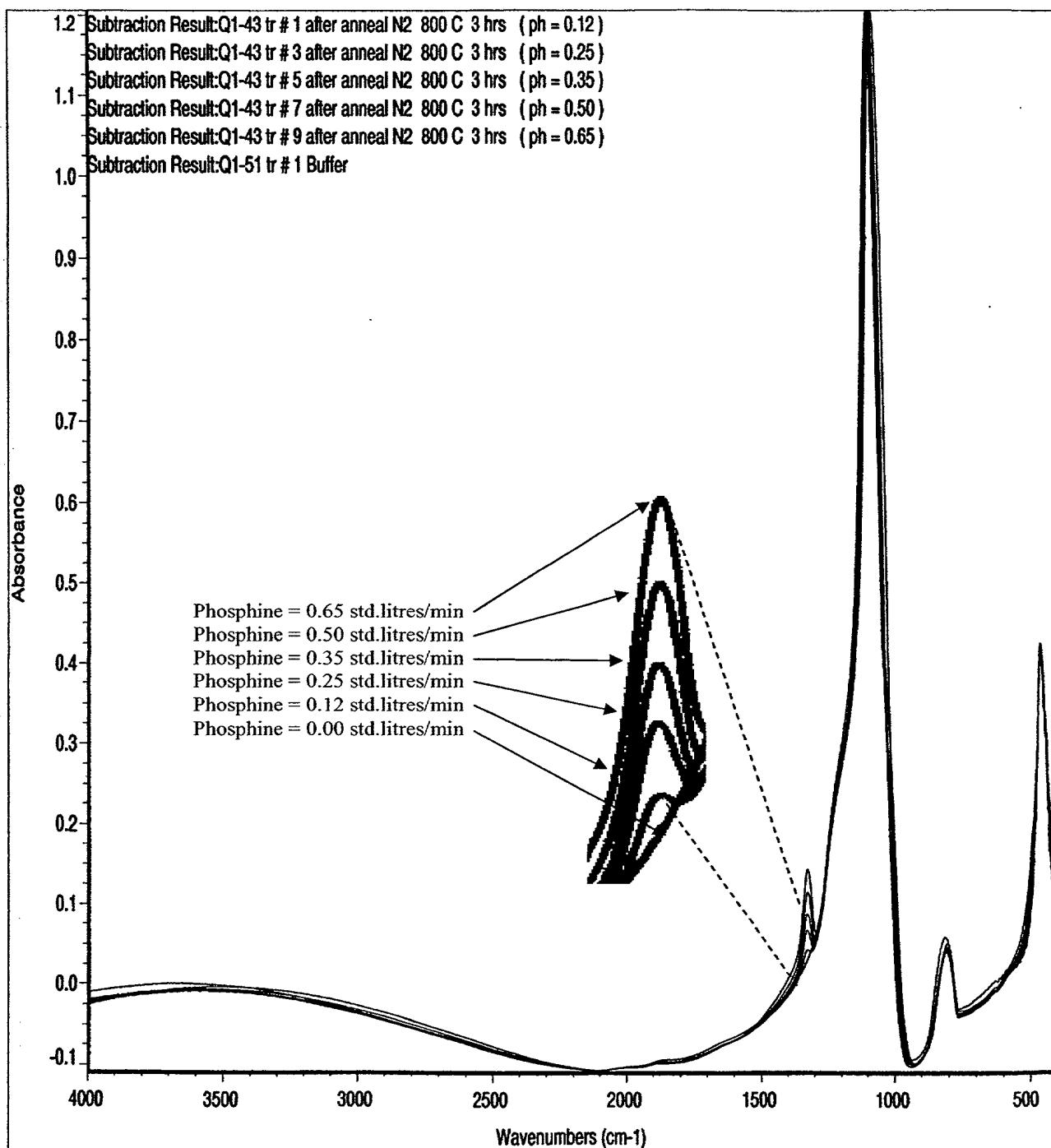


Figure 3d

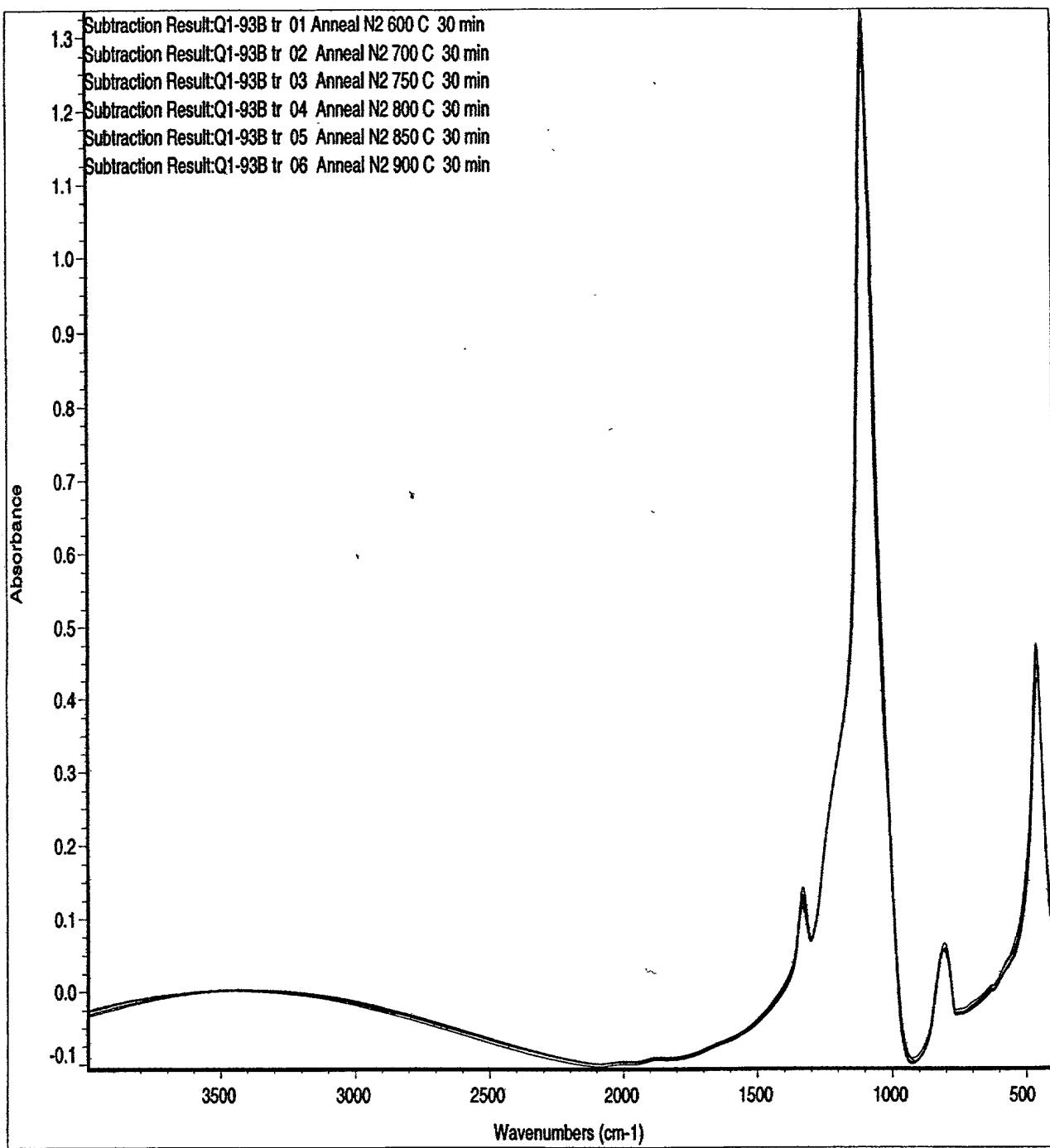


Figure 4a

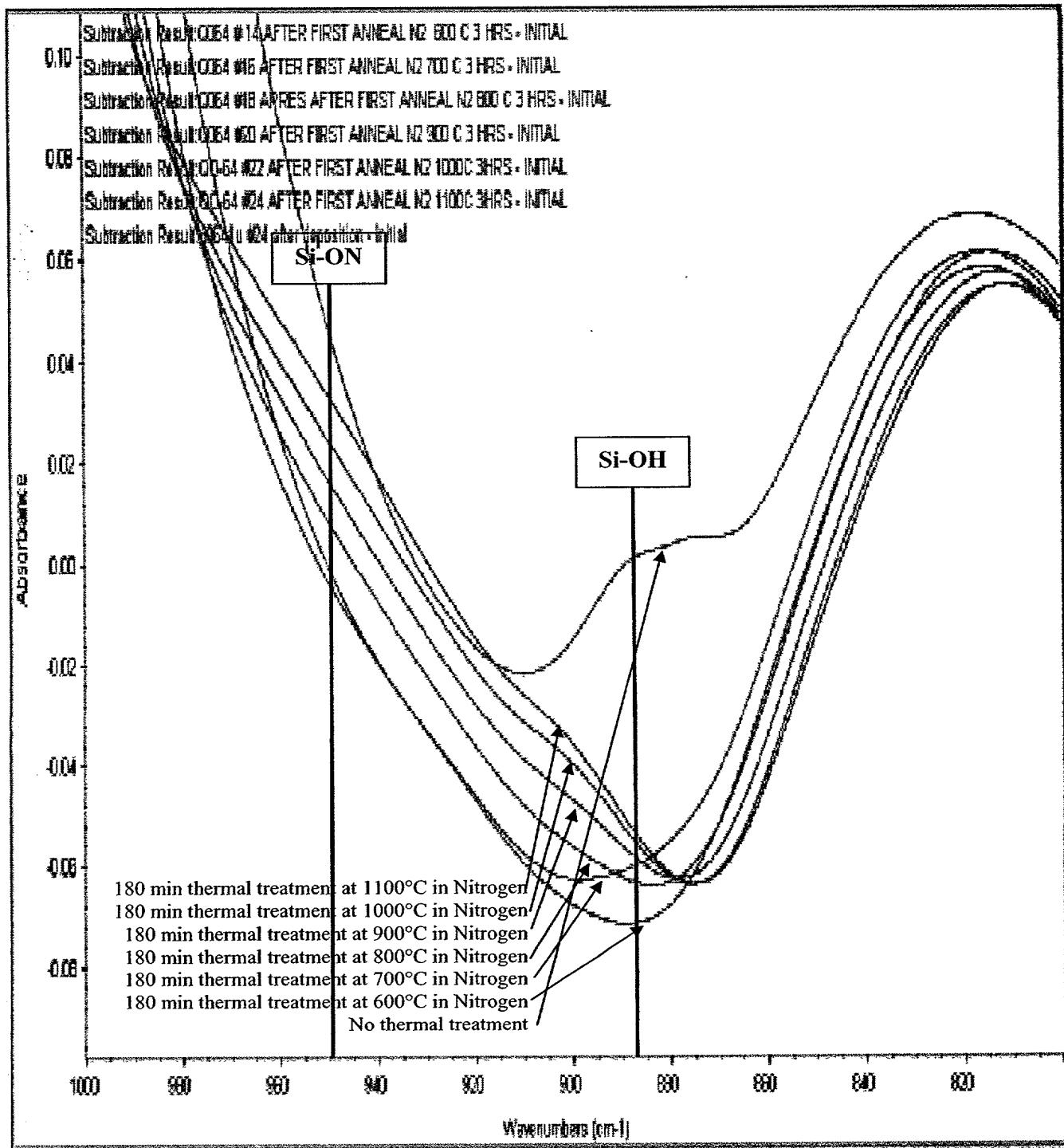


Figure 4b

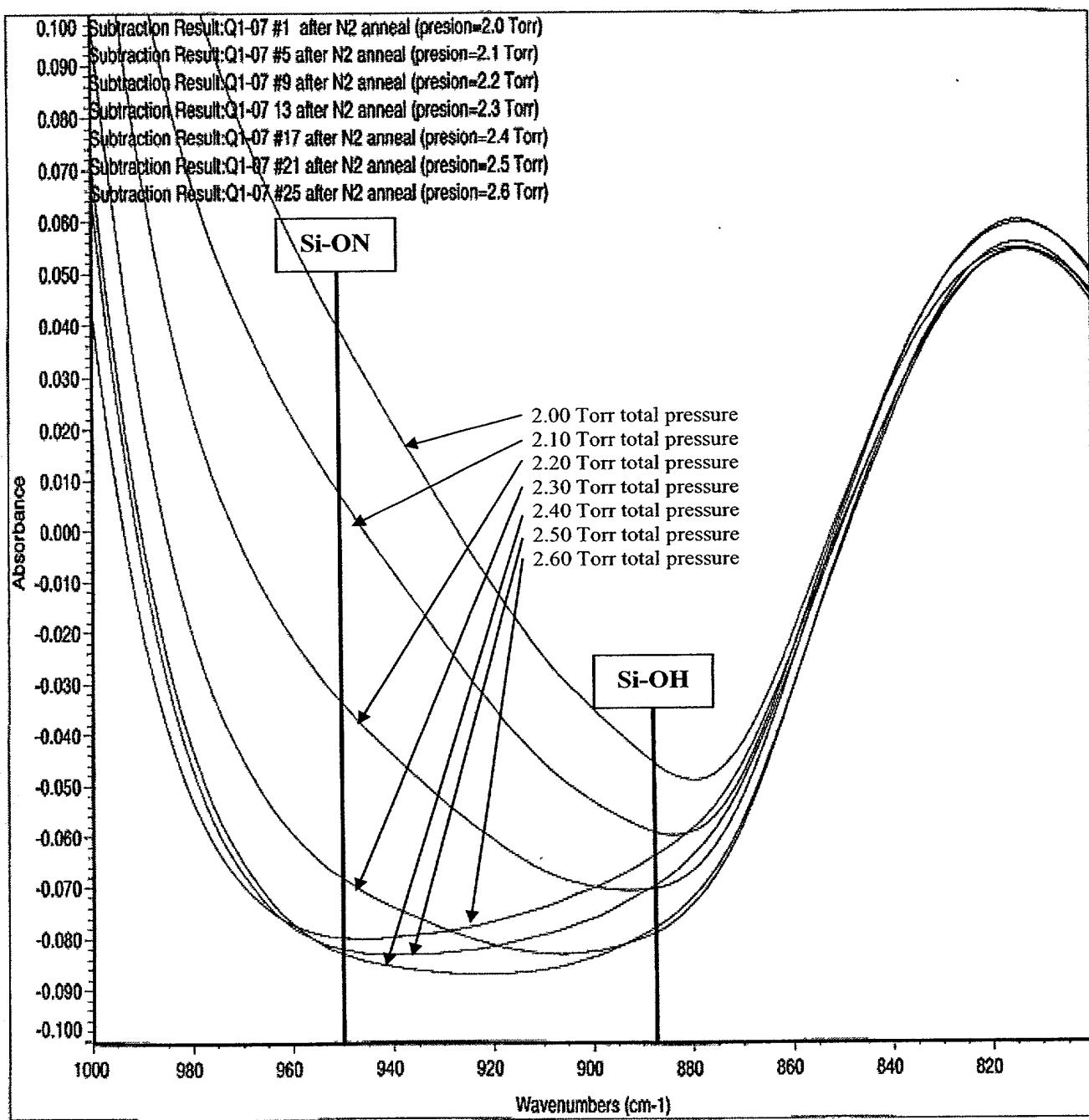


Figure 4c

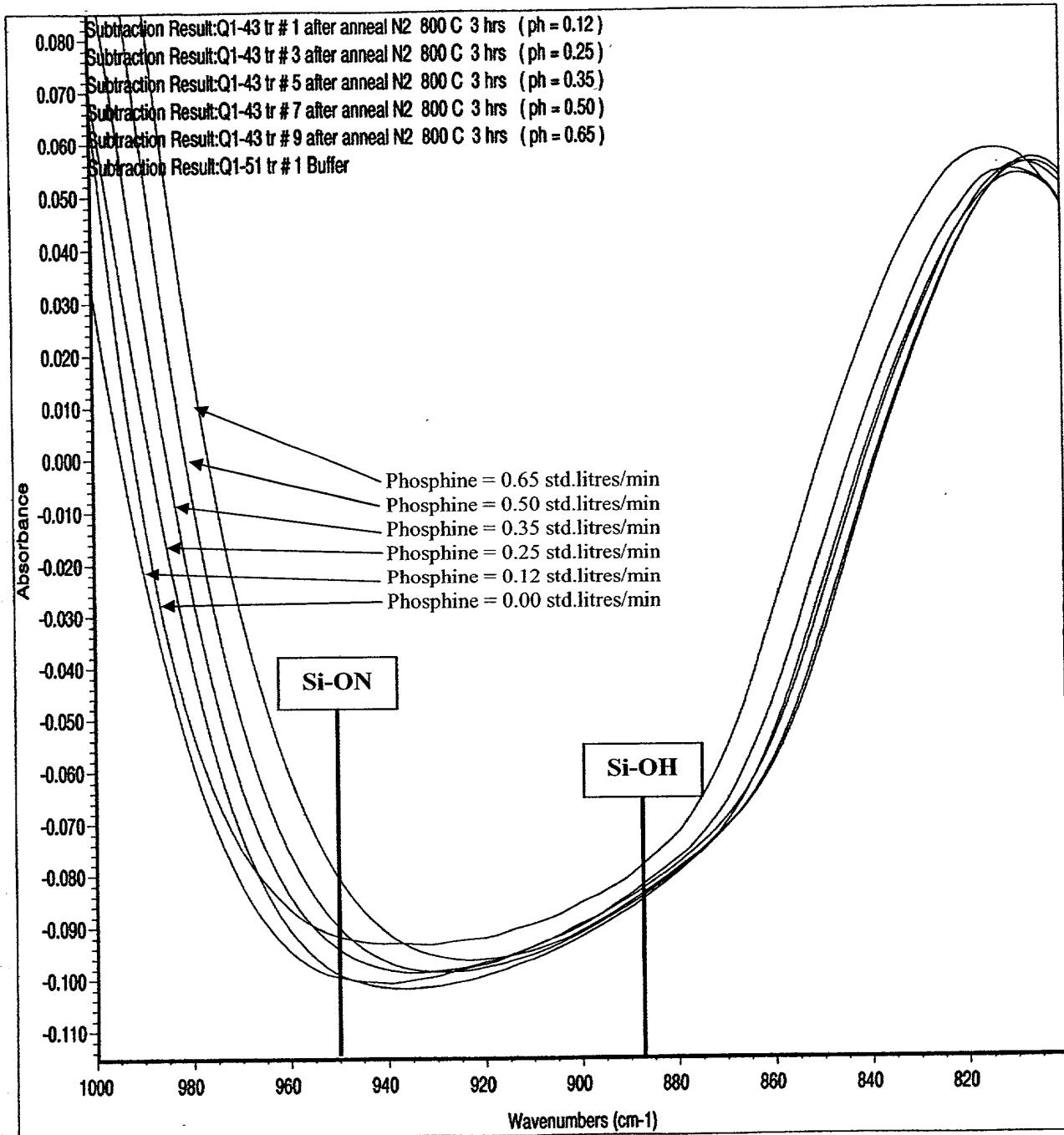


Figure 4d

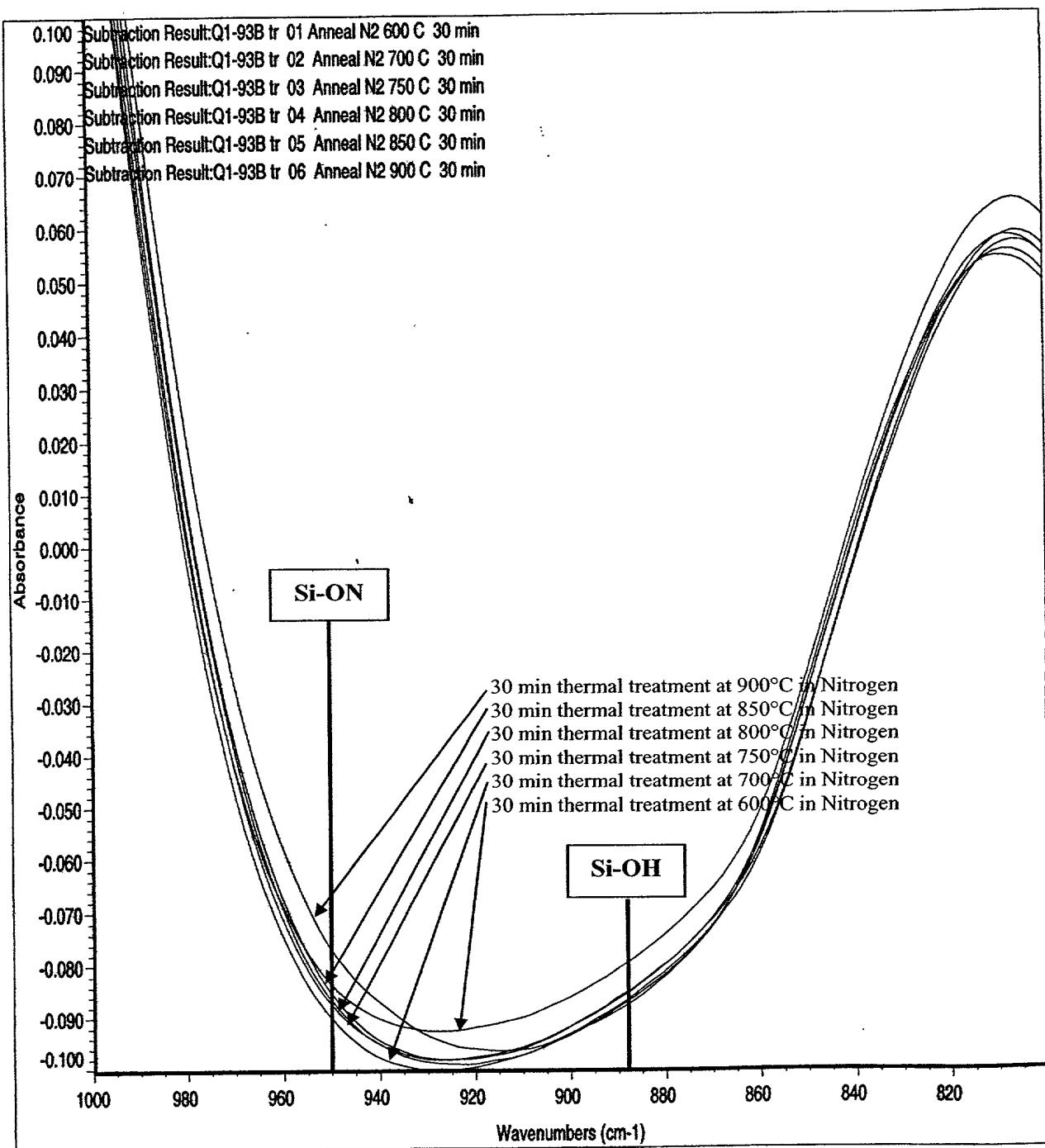


Figure 5c

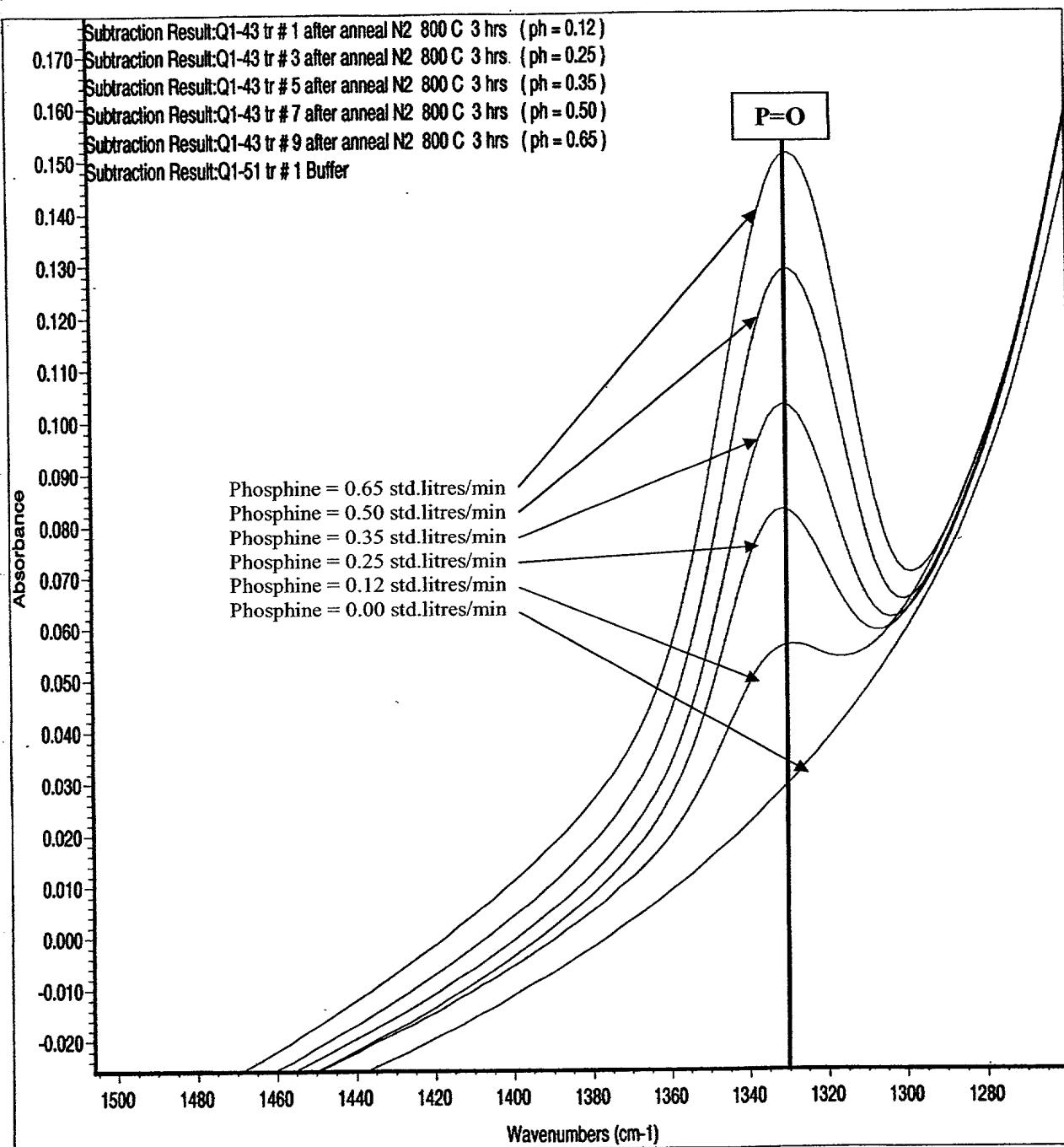


Figure 5d

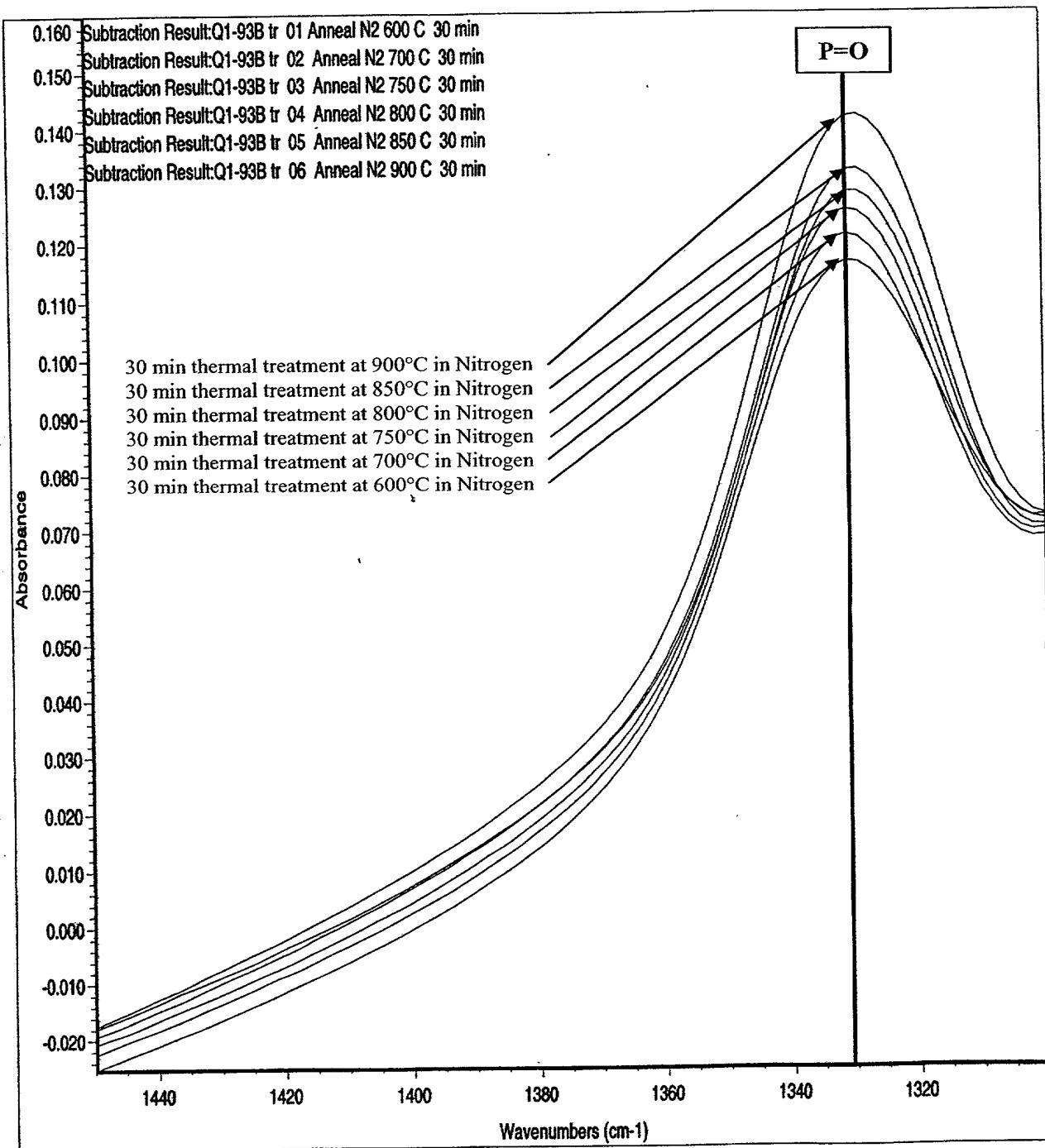


Figure 6a

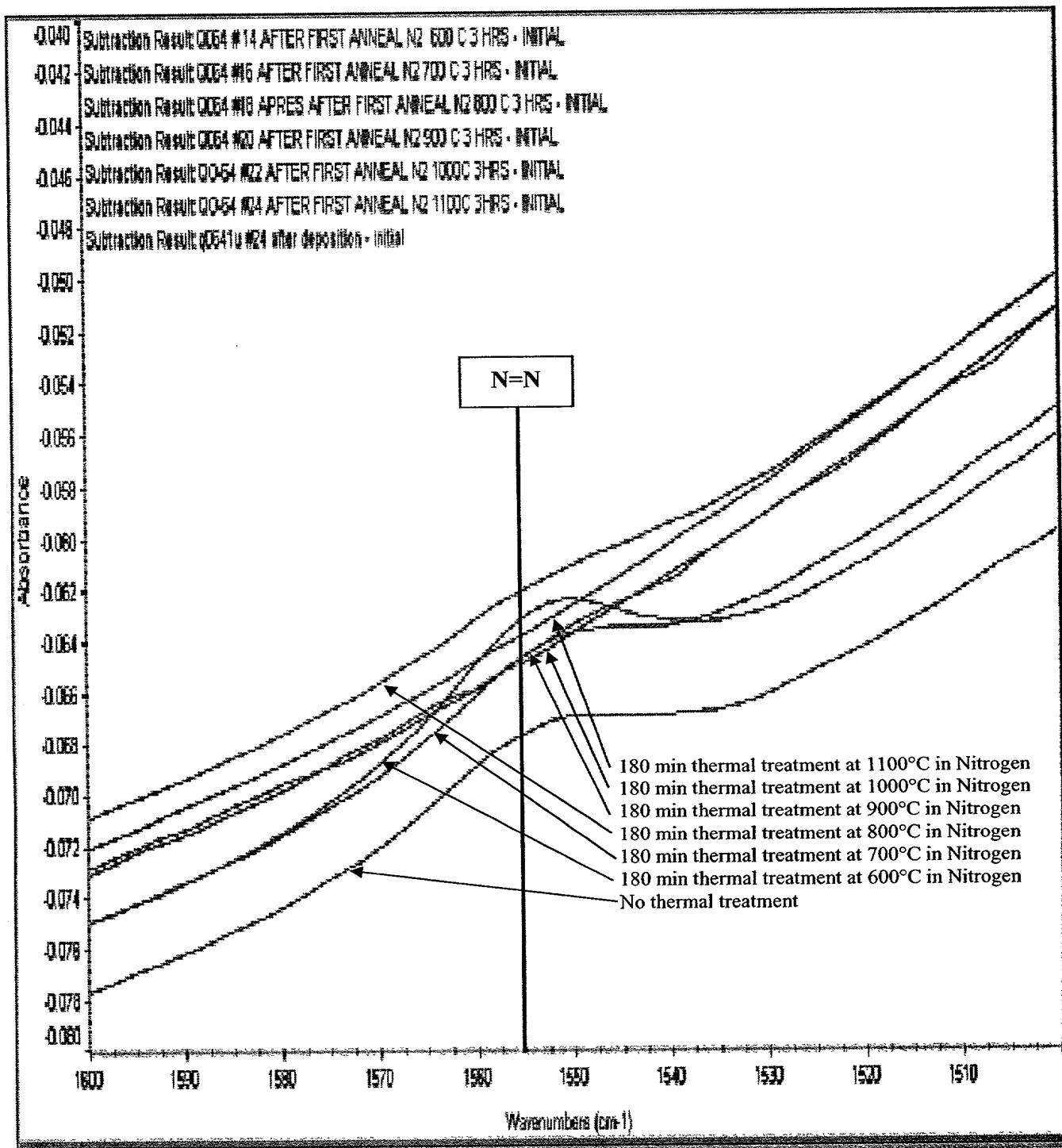


Figure 6b

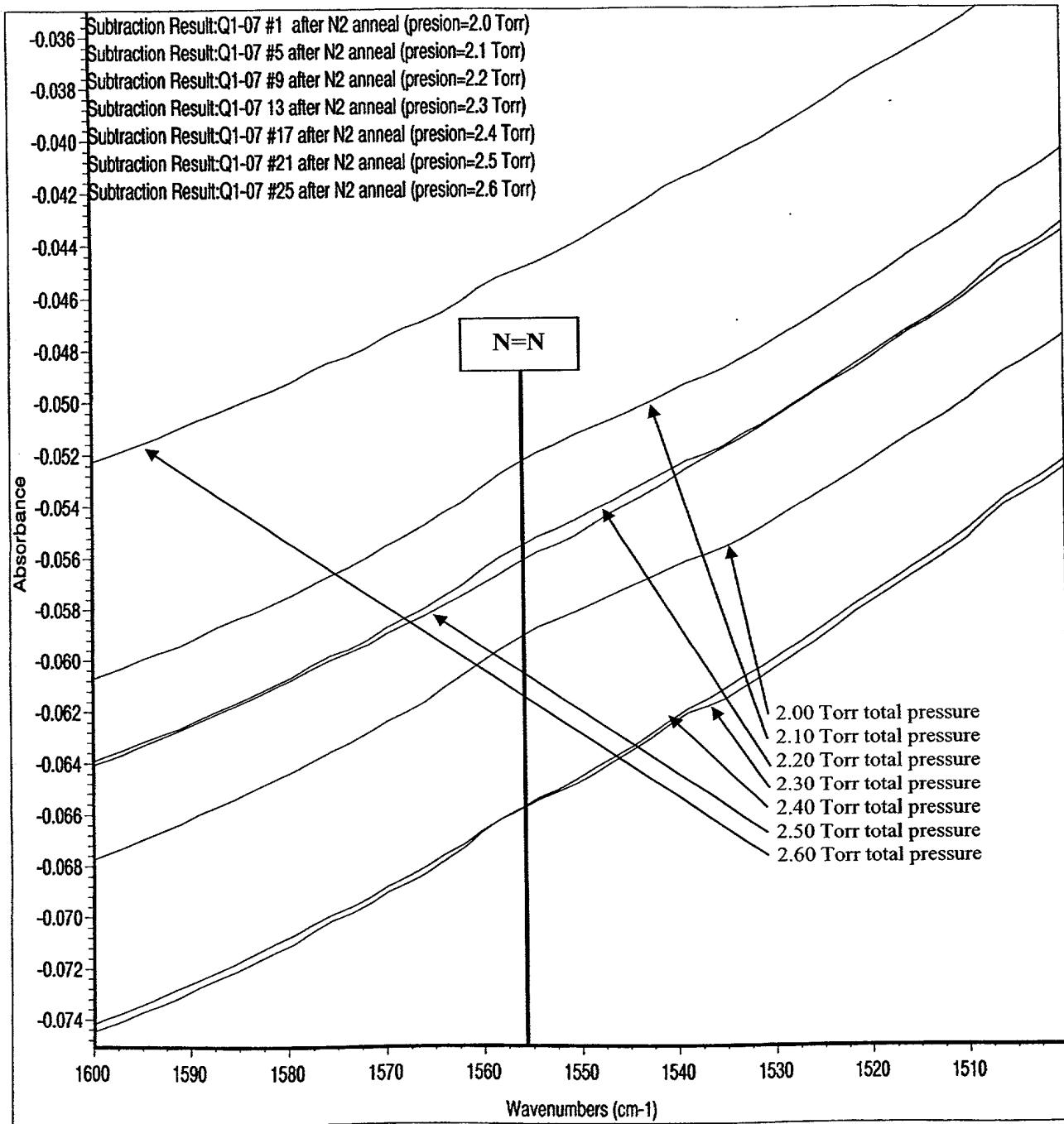


Figure 6c

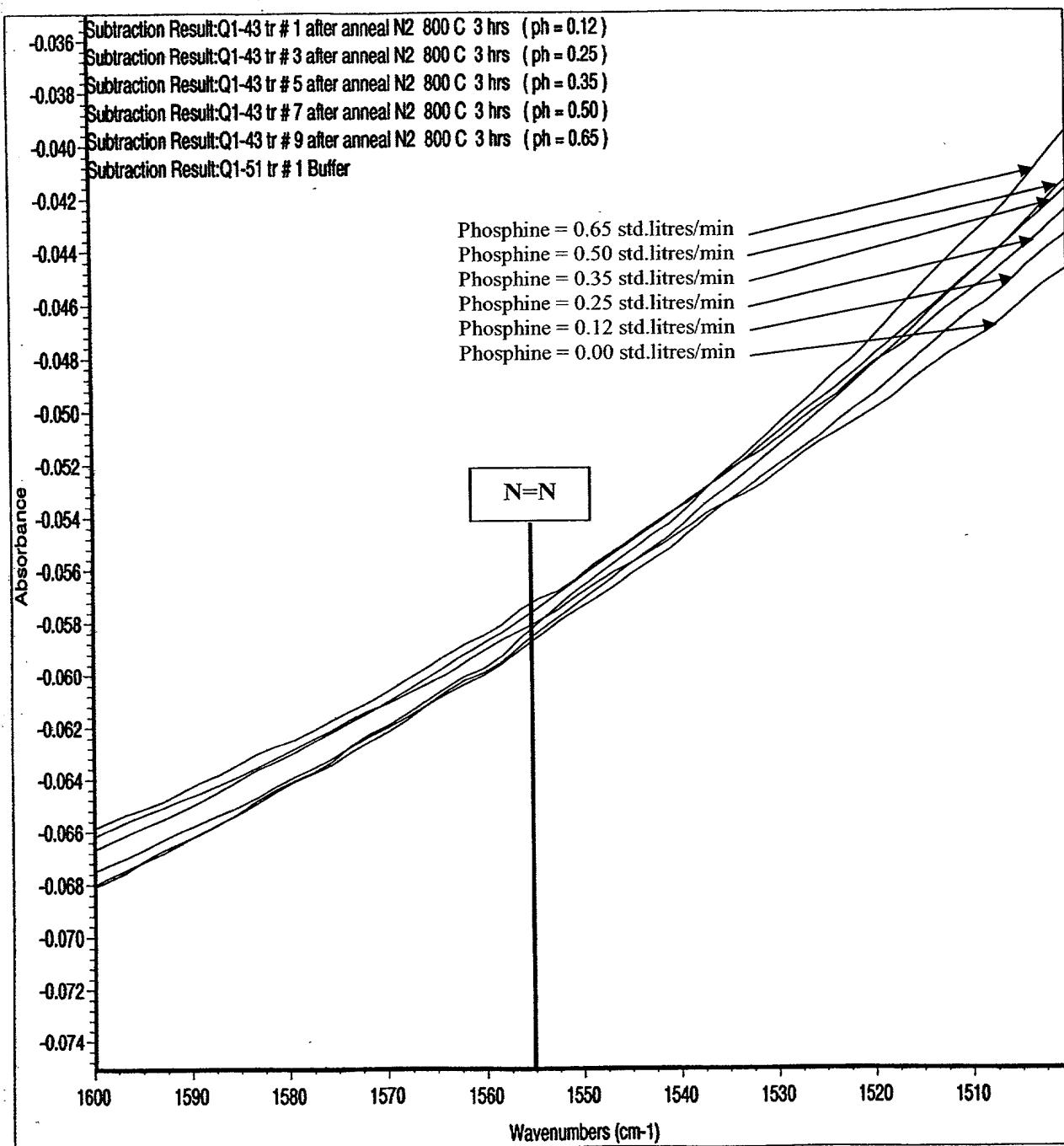


Figure 6d

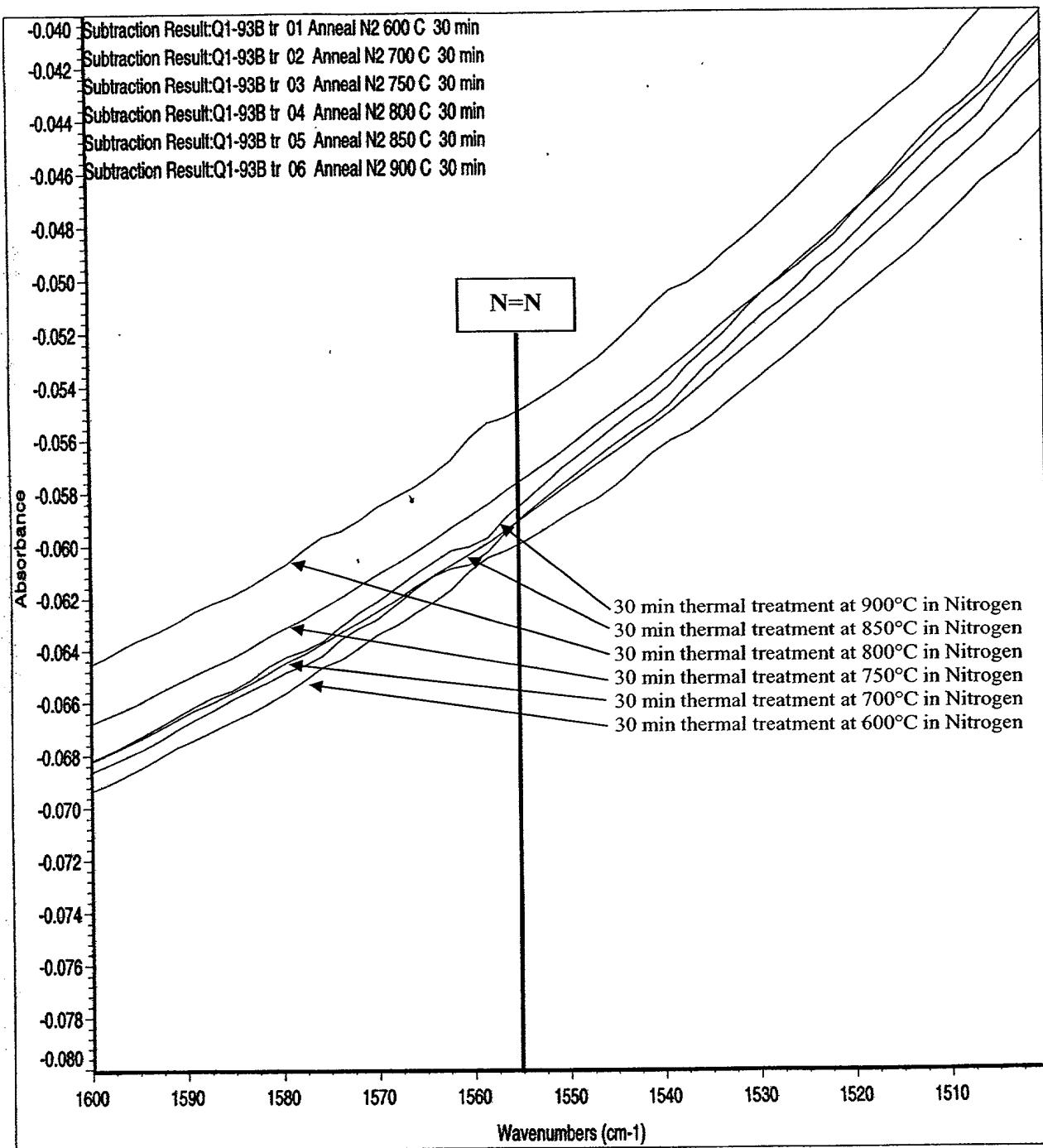
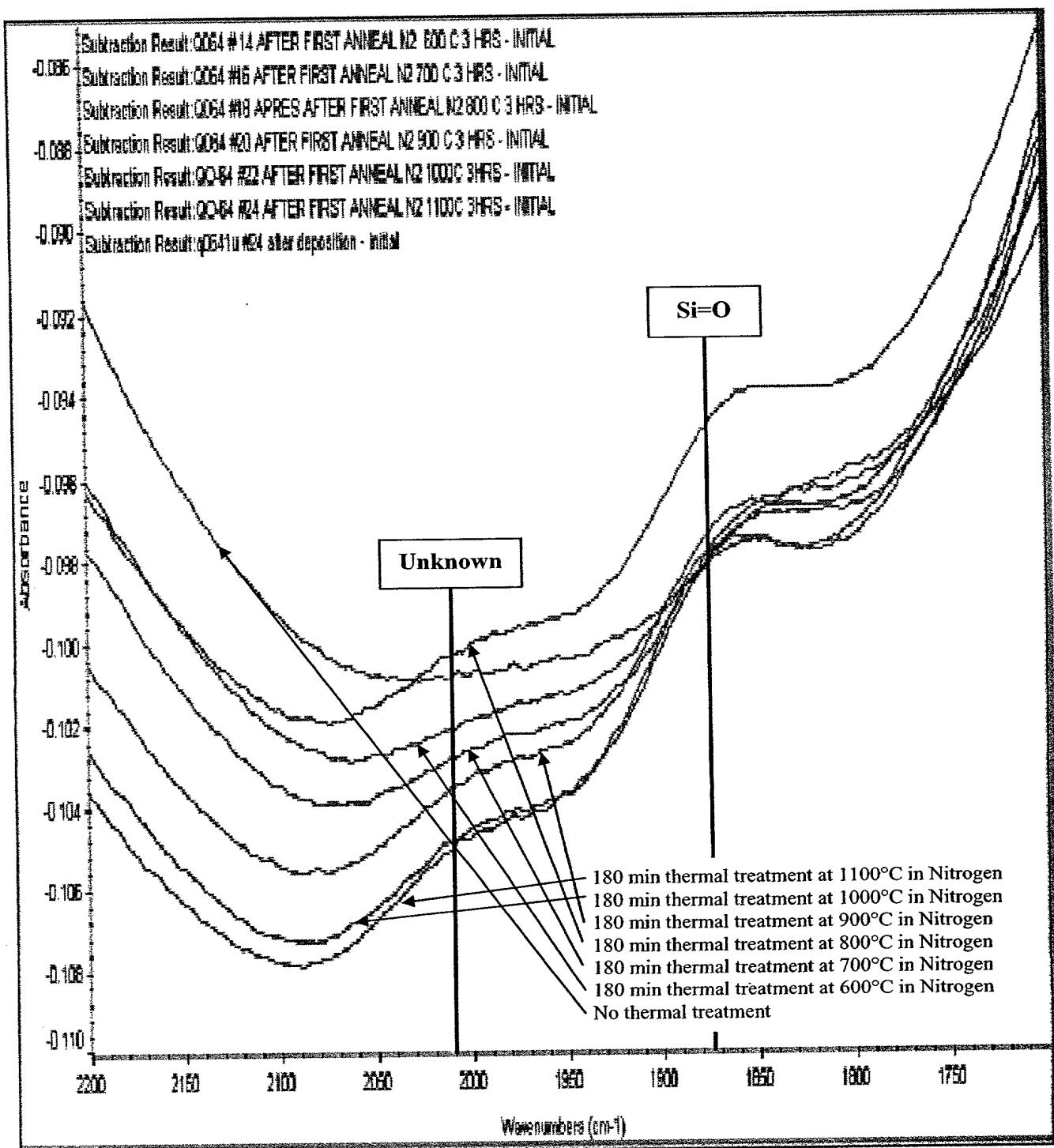


Figure 7a



TO T600-9T600-9T600

Figure 7b

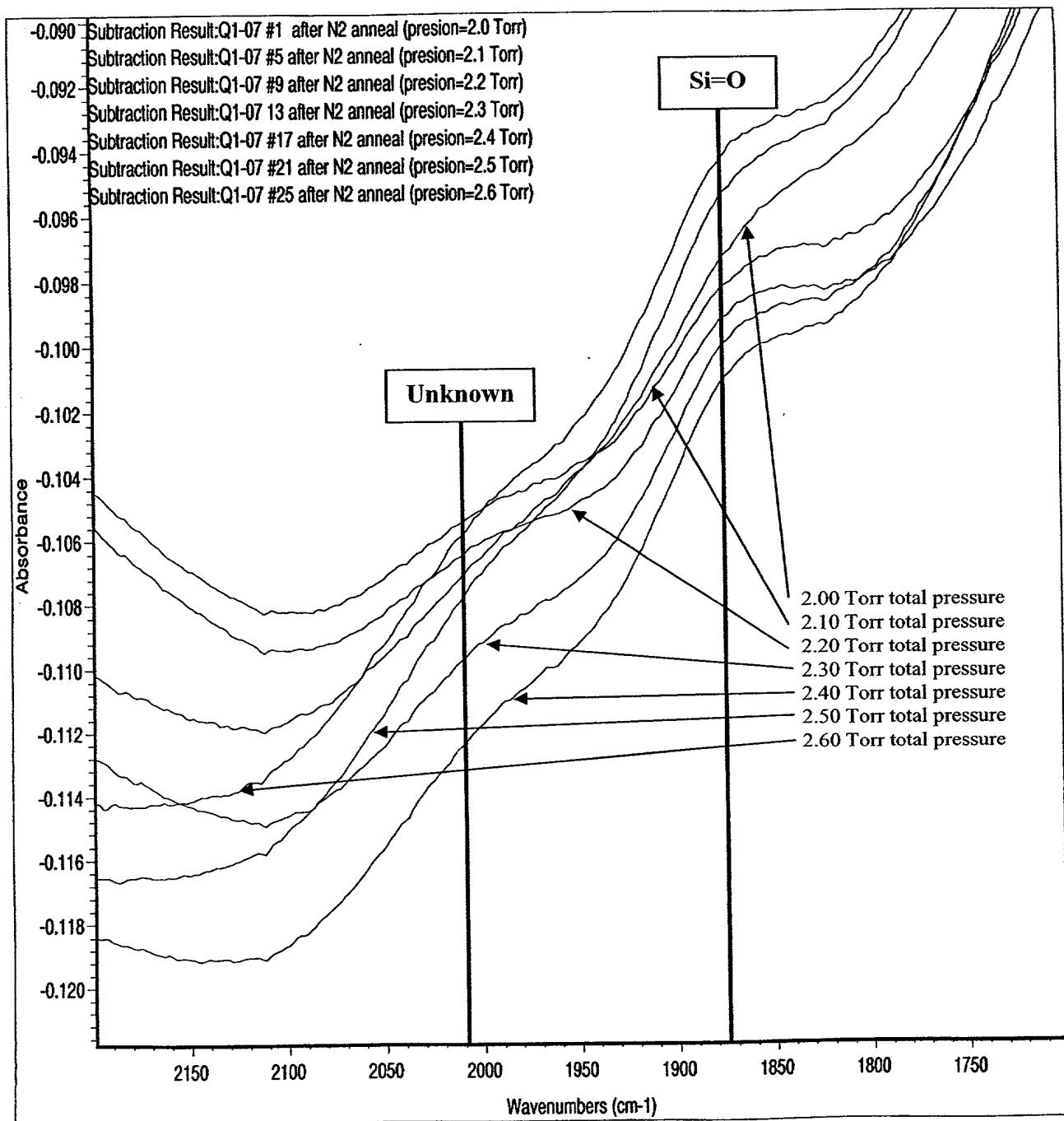


Figure 7c

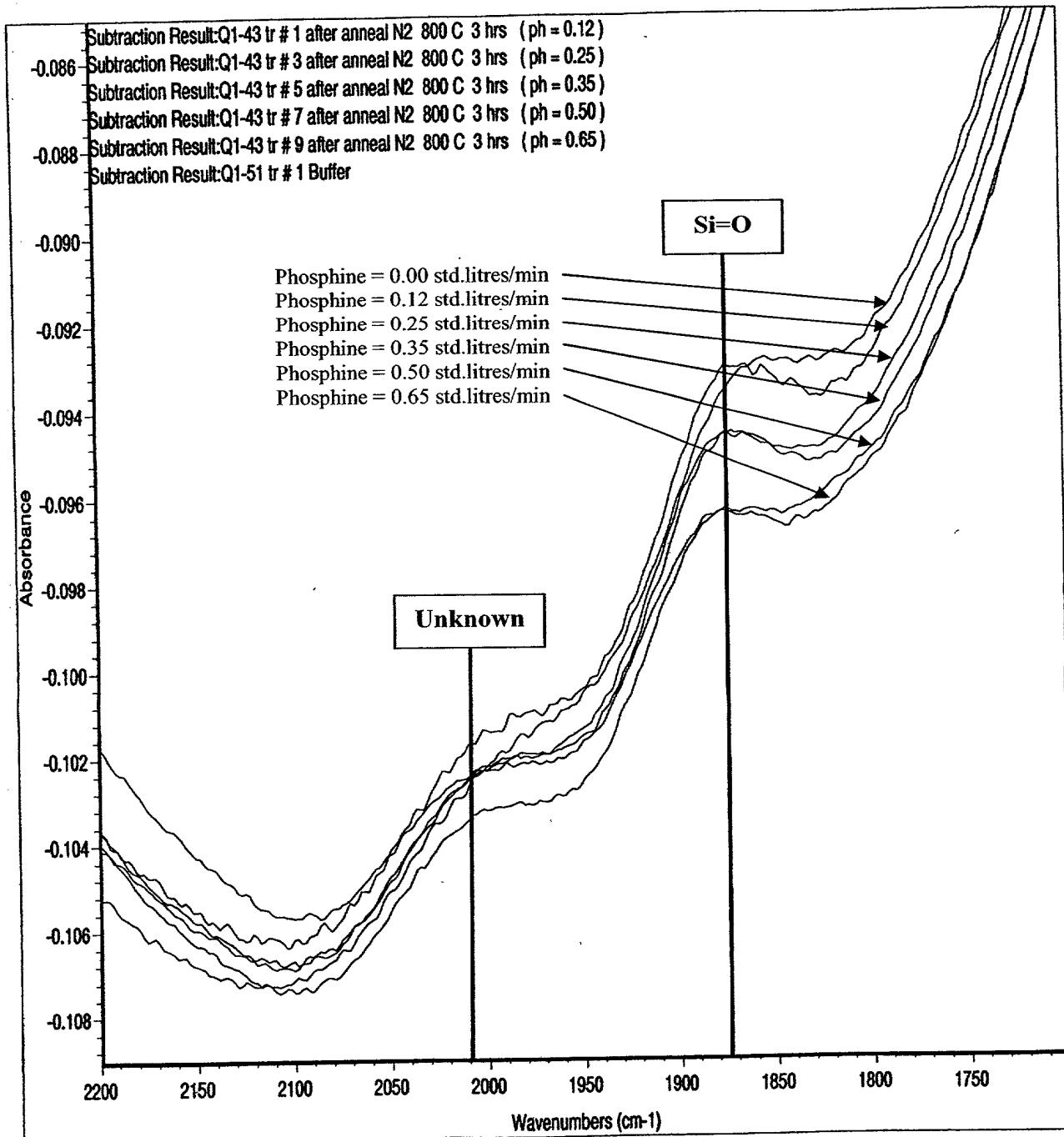


Figure 7d

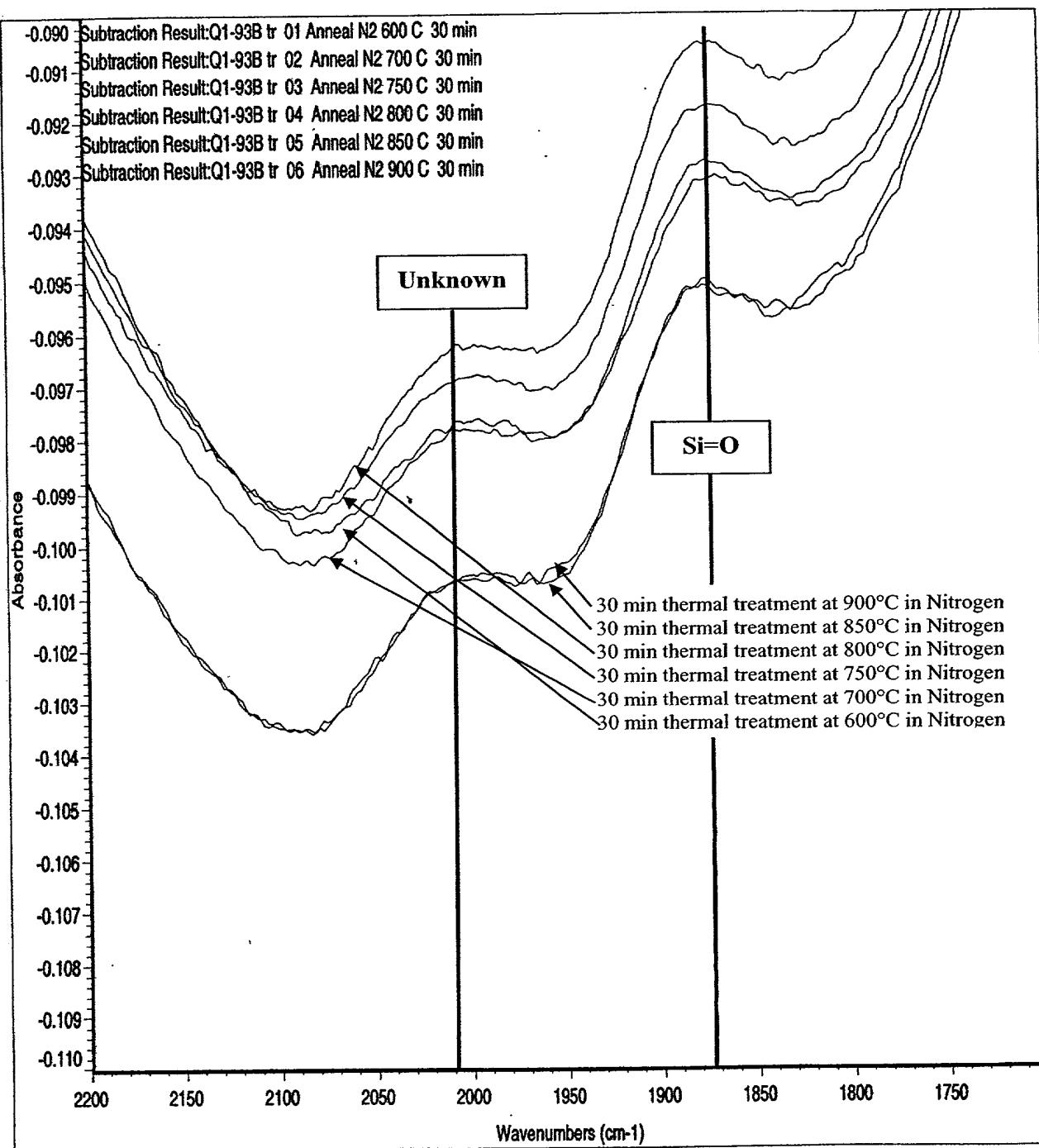


Figure 8a

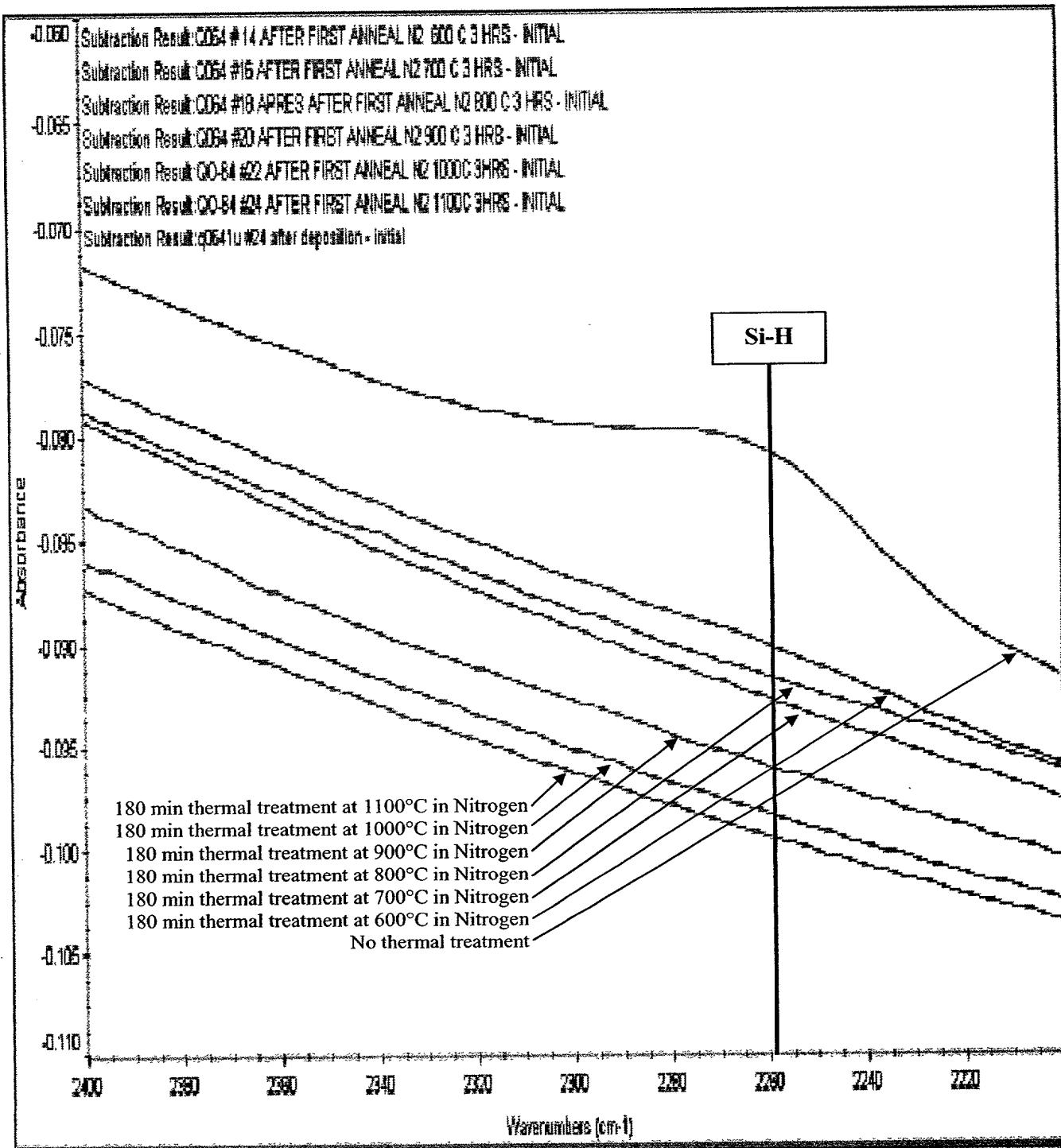


Figure 8b

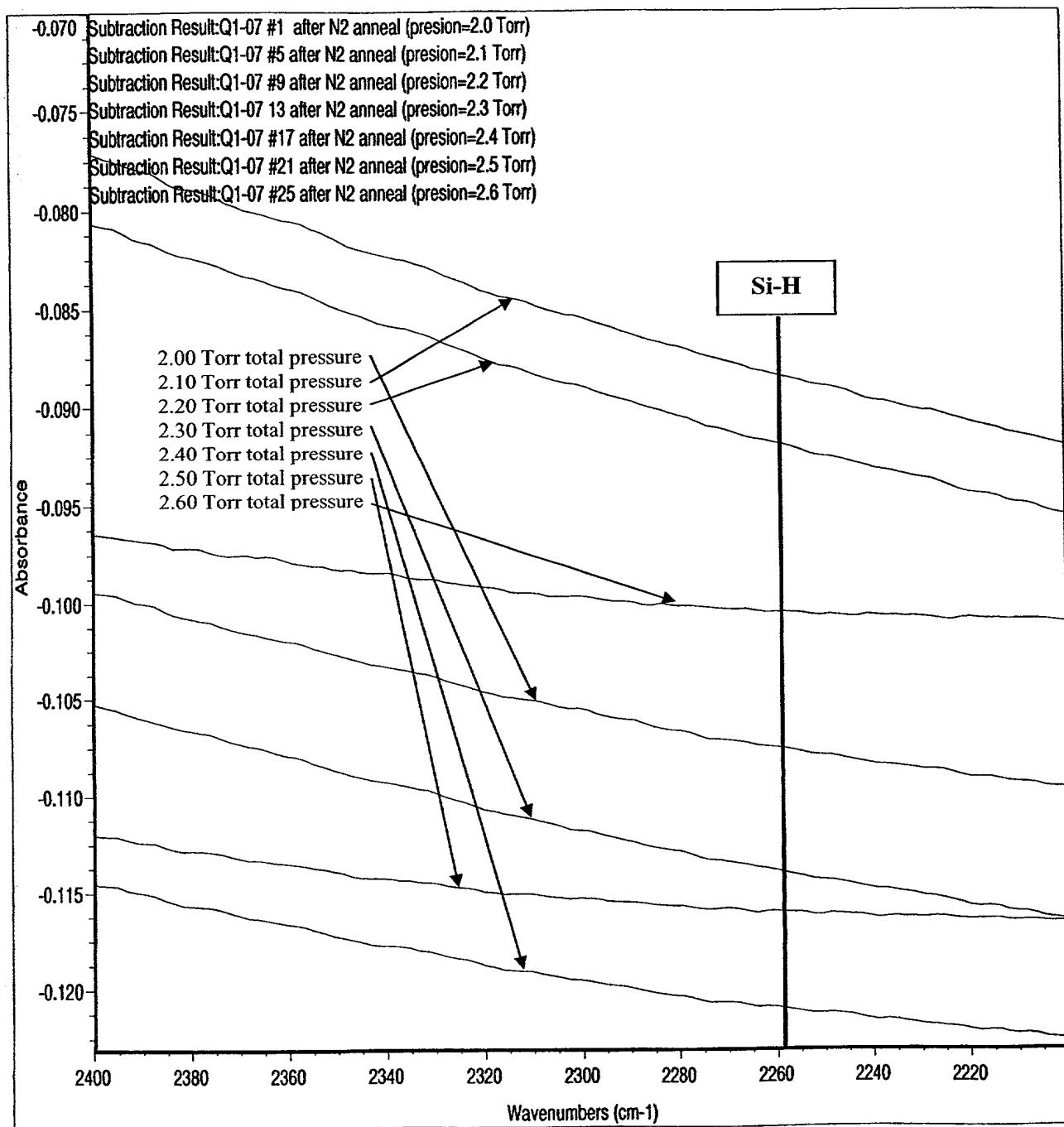


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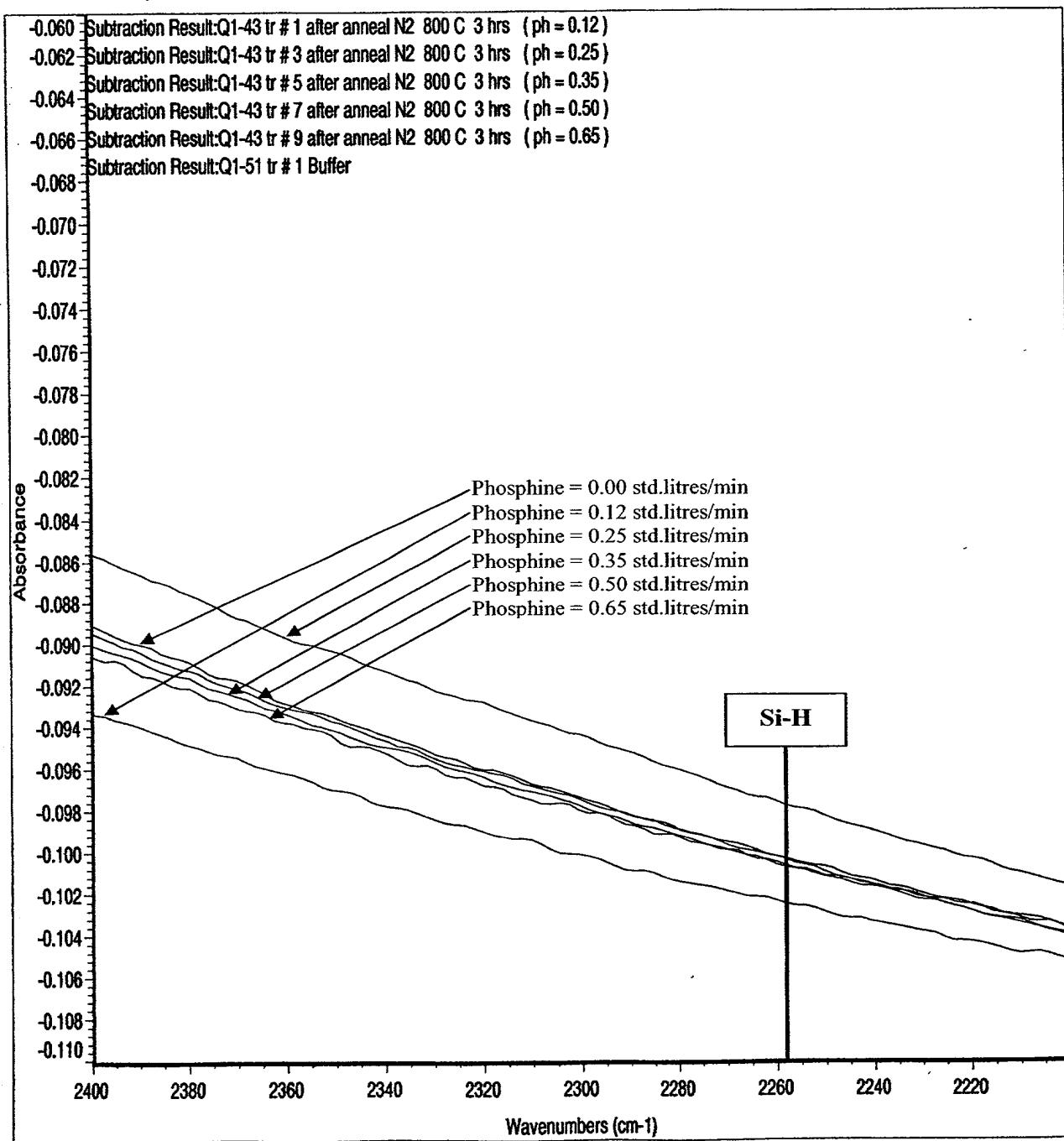


Figure 8d

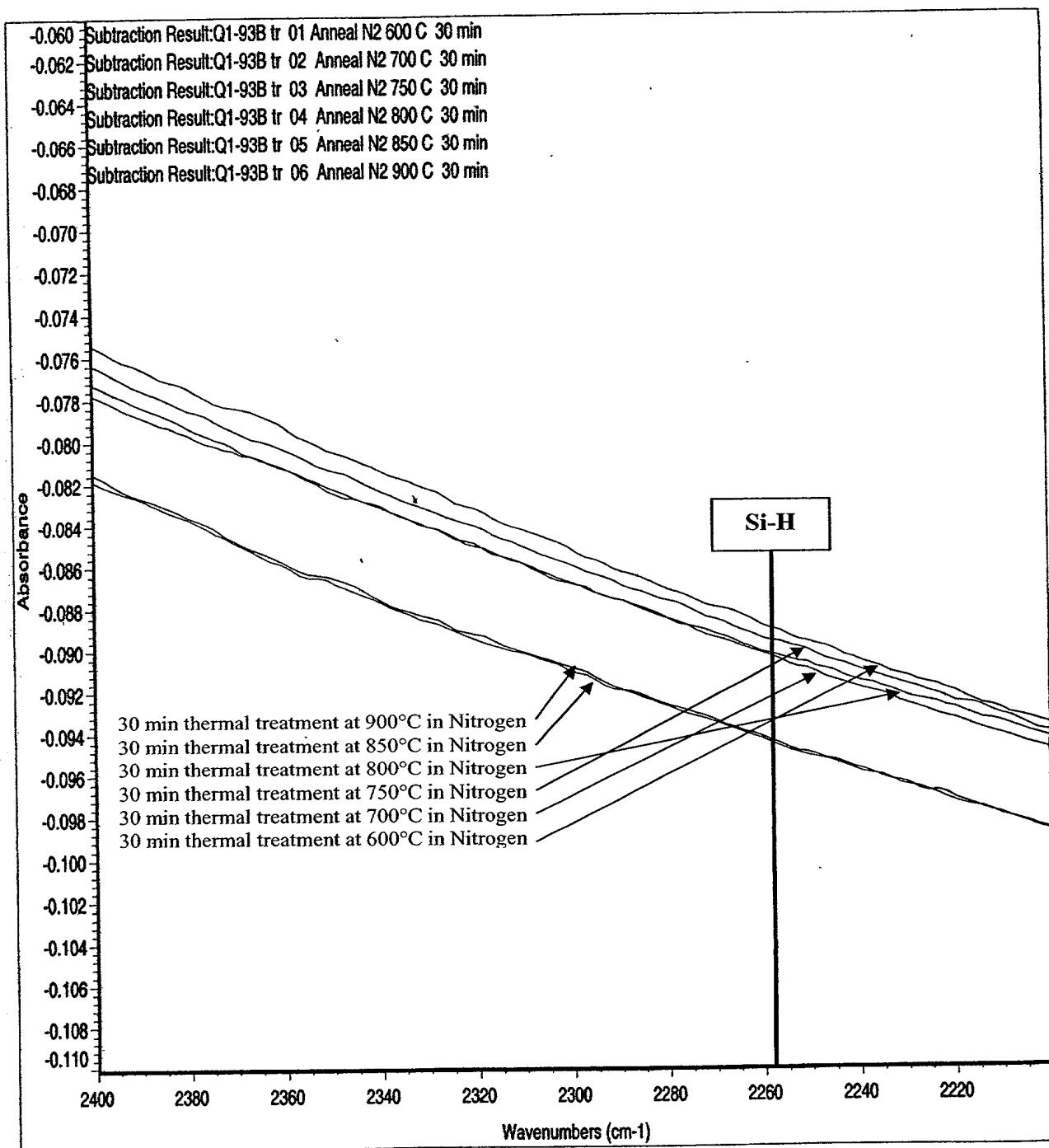


Figure 9a

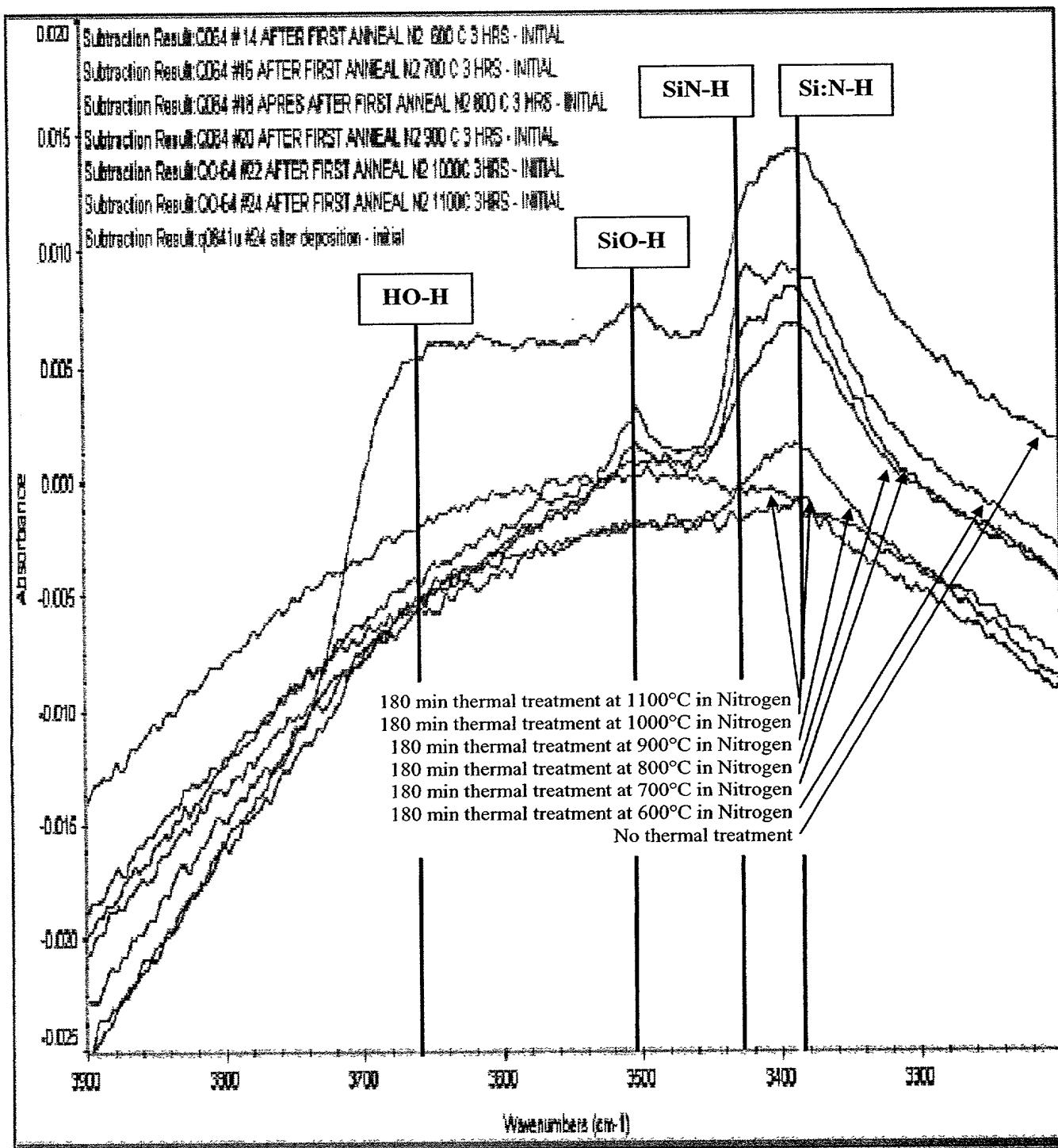


Figure 9b

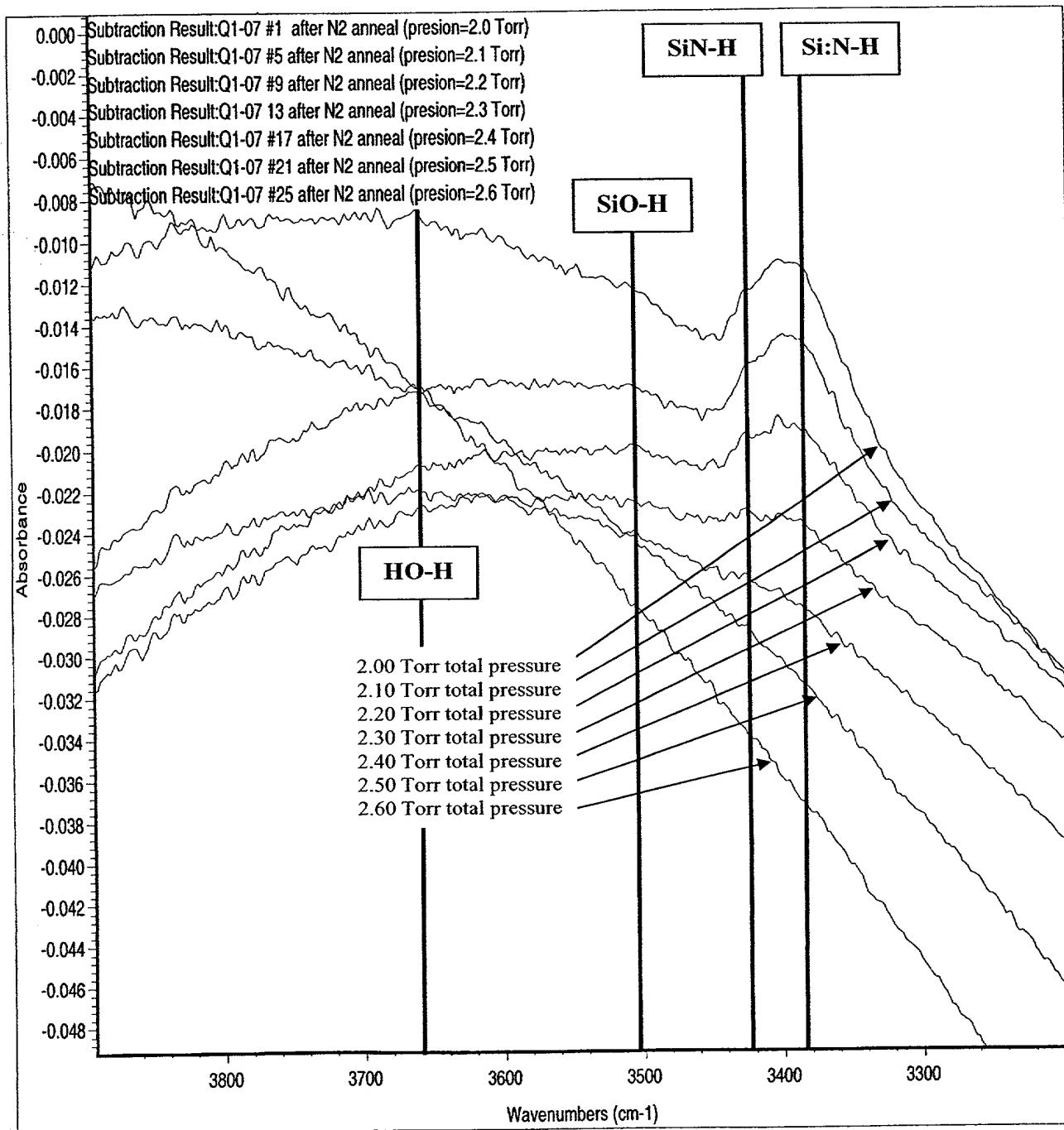


Figure 9c

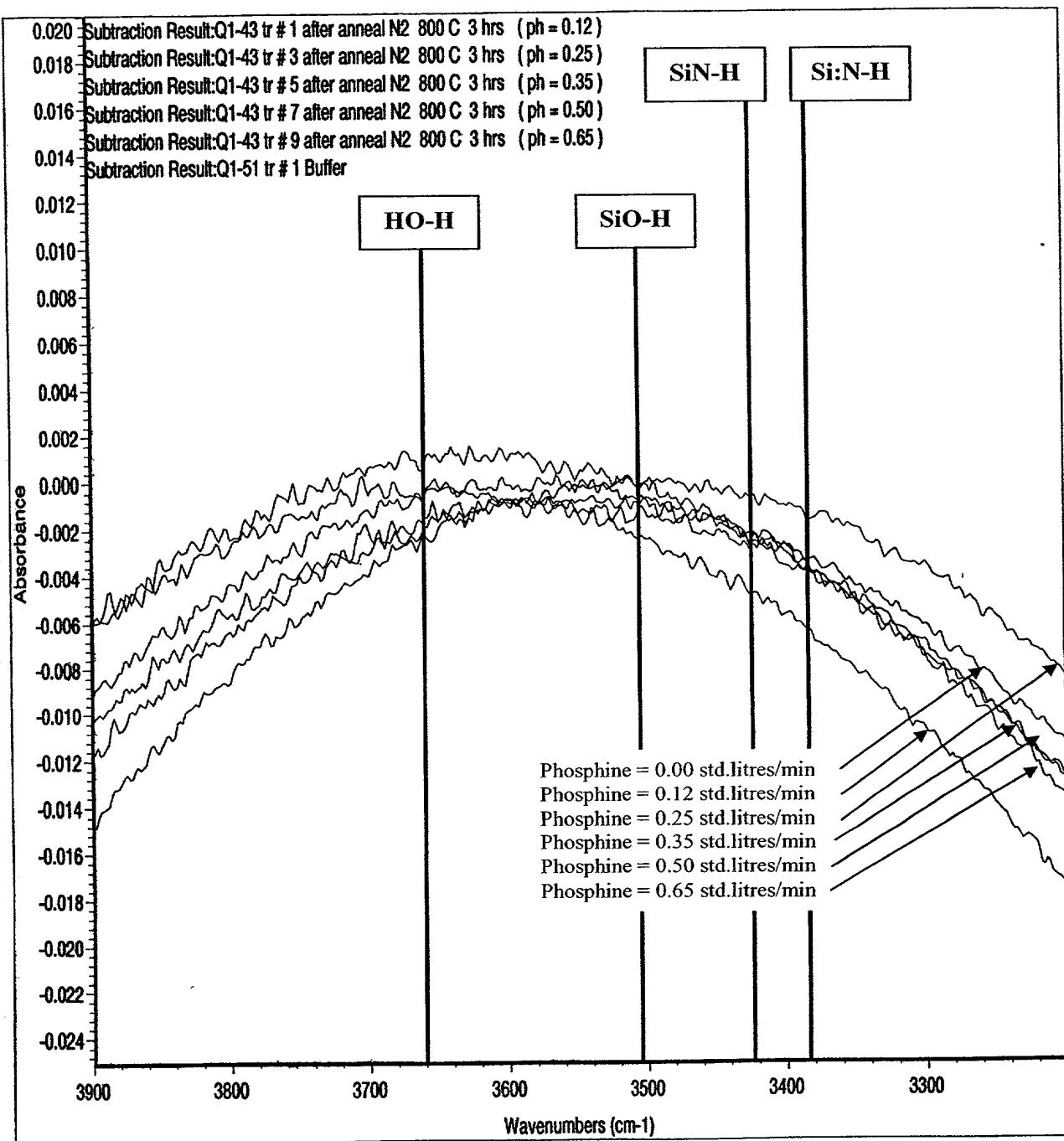


Figure 9d

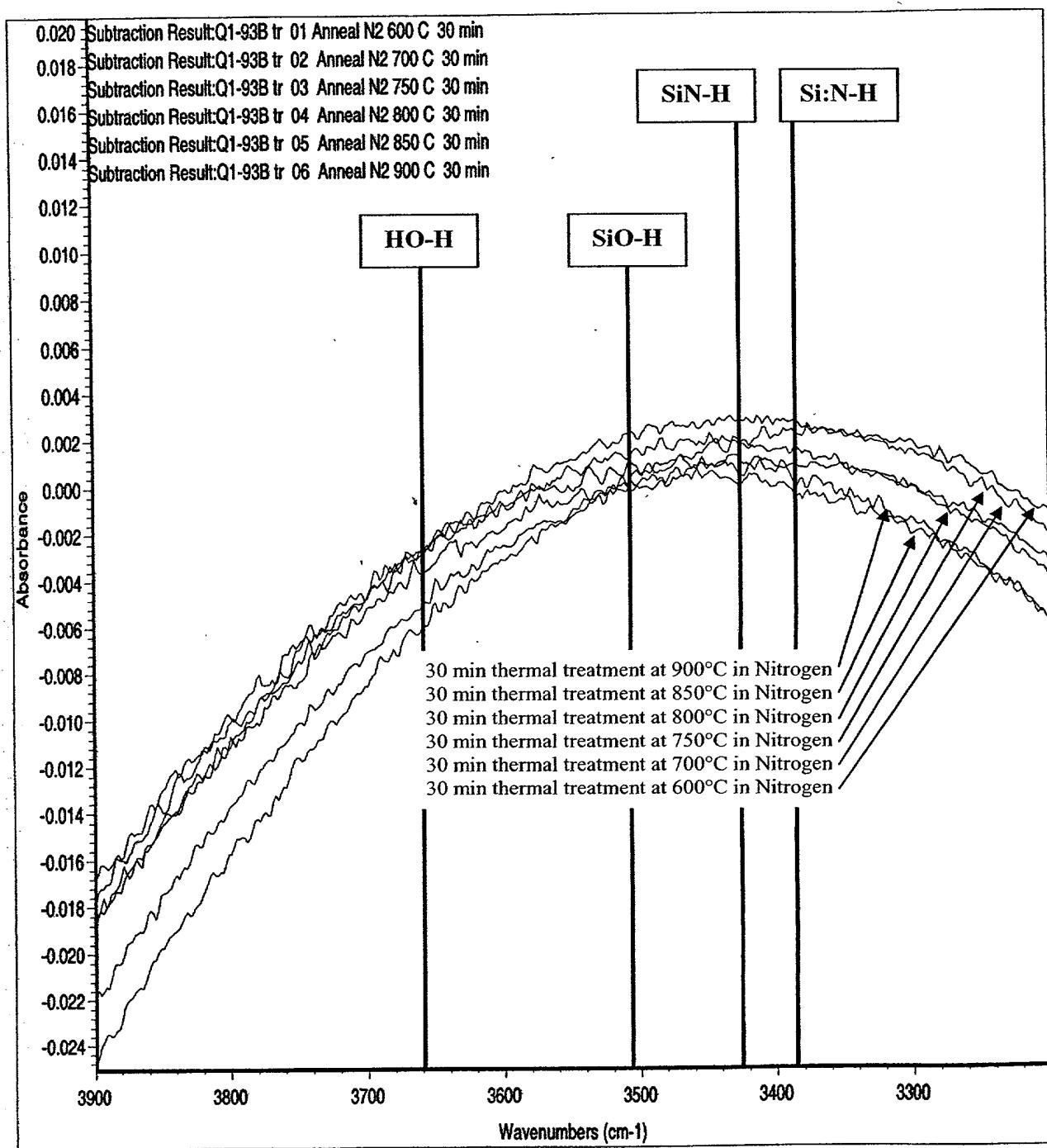


Figure 10

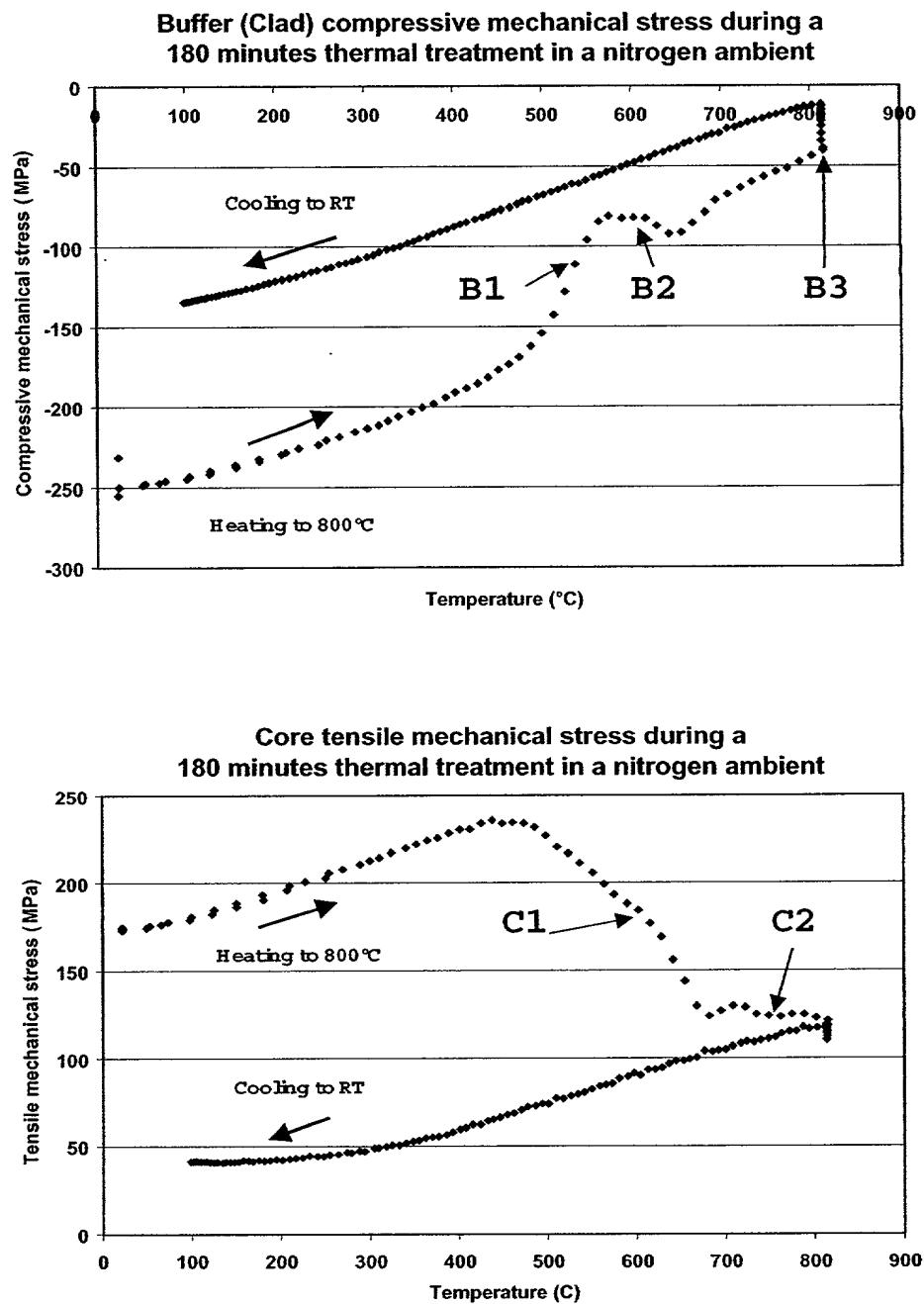


Figure 11

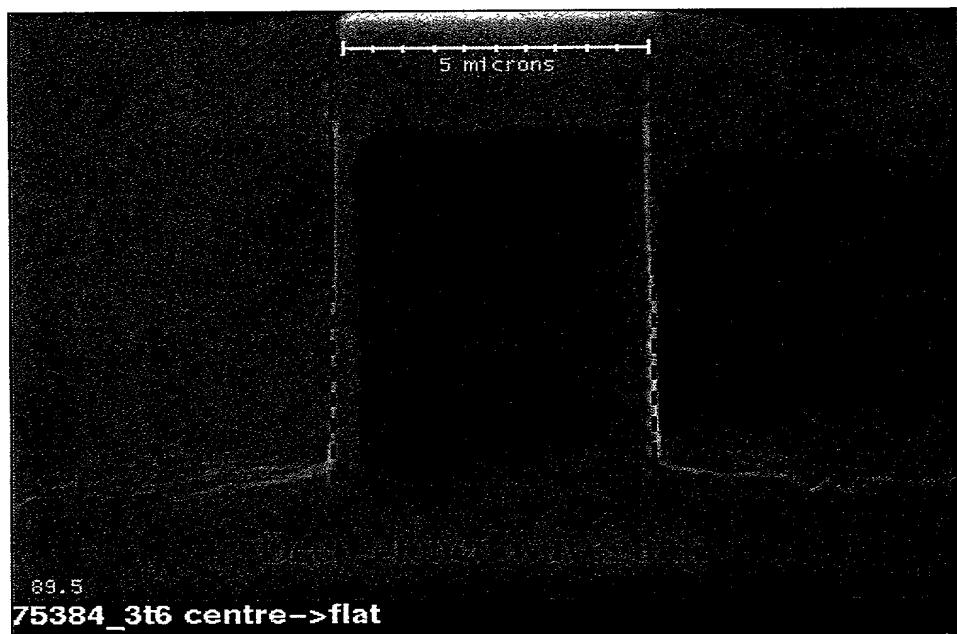
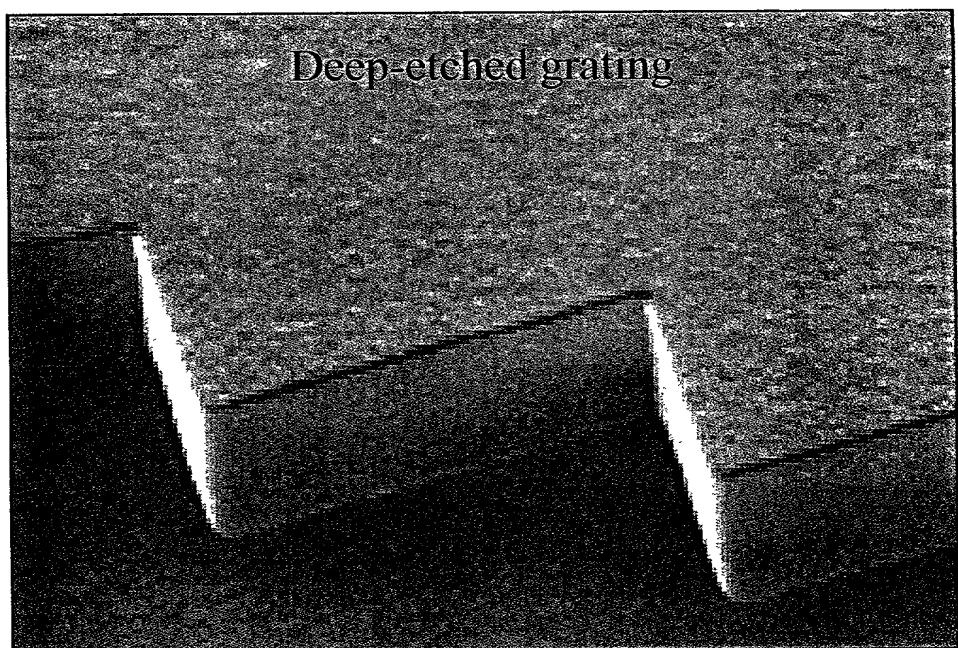


Figure 12

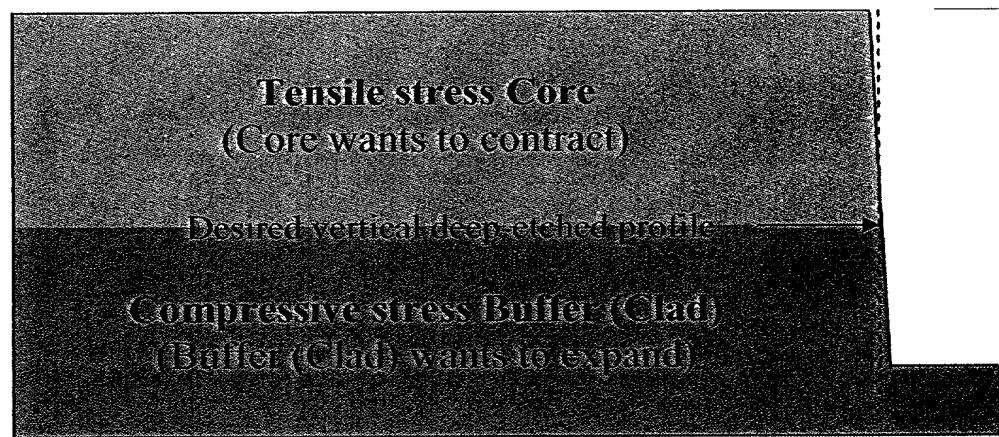
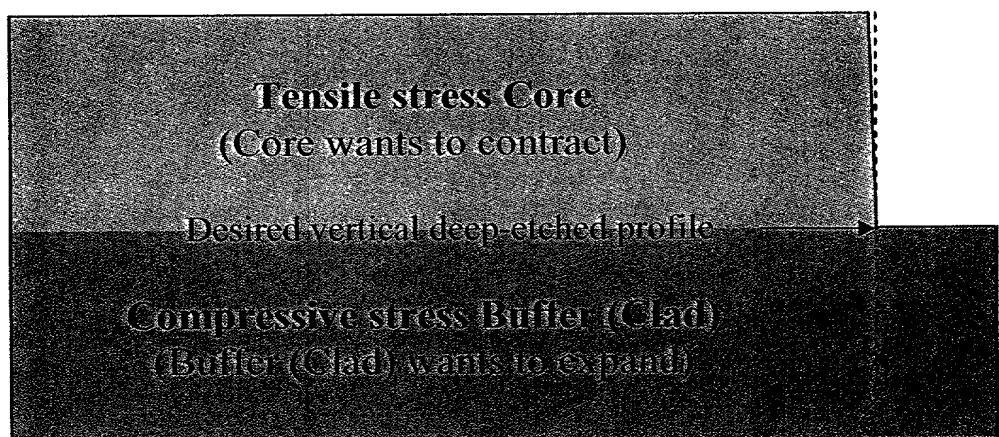
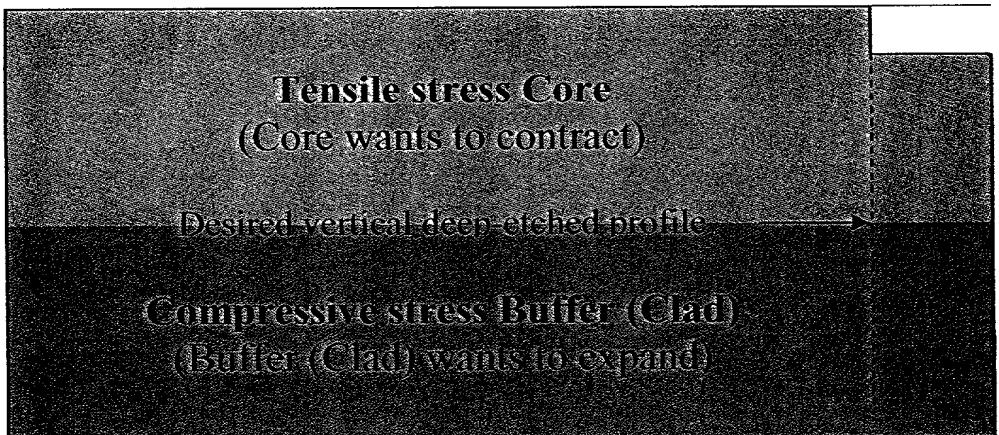


Figure 13

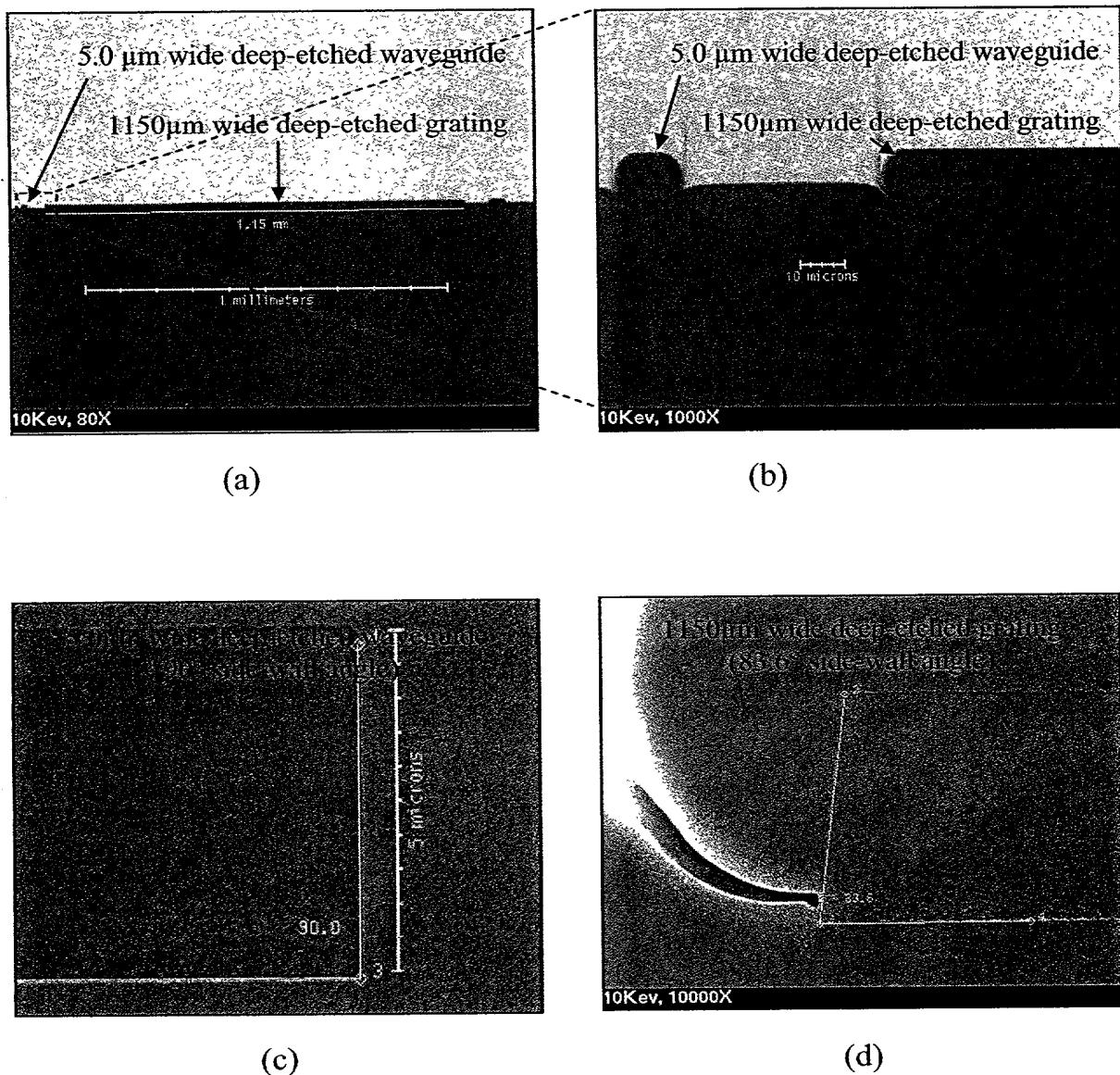


Figure 14

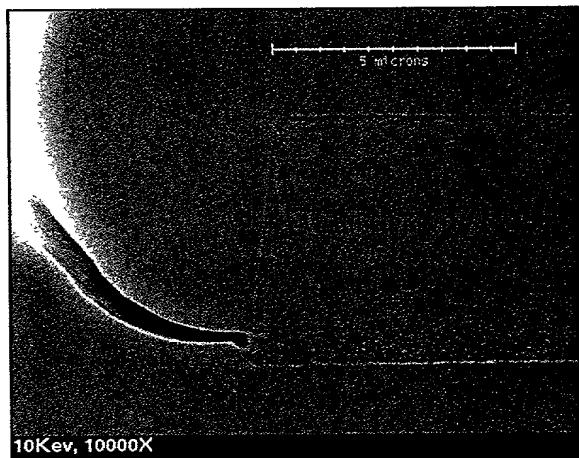
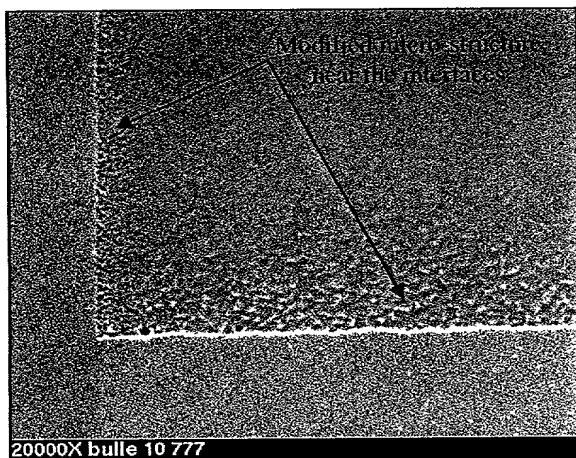
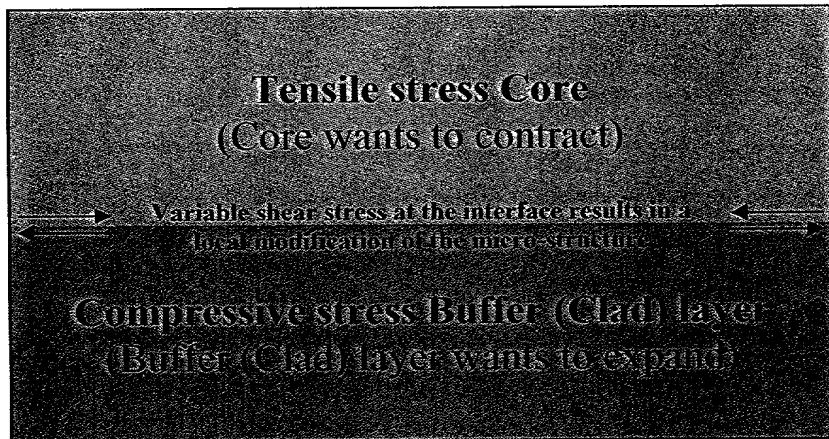


Figure 15

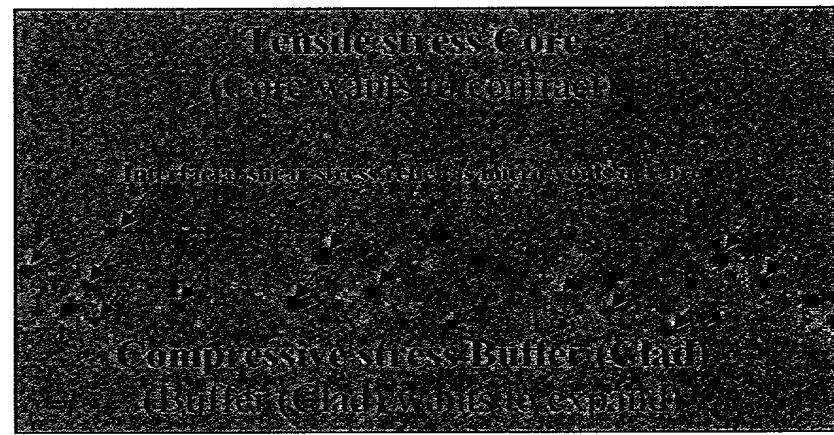
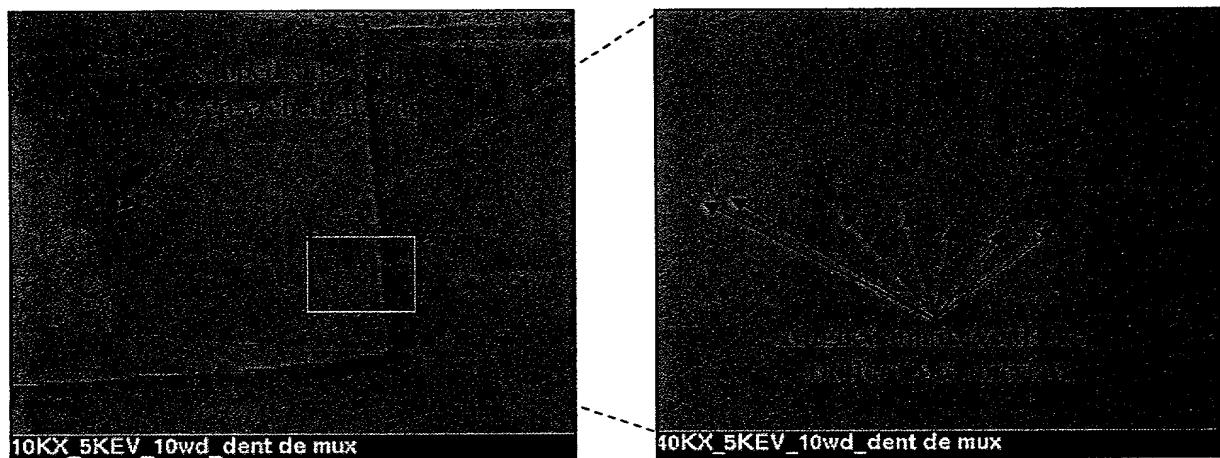
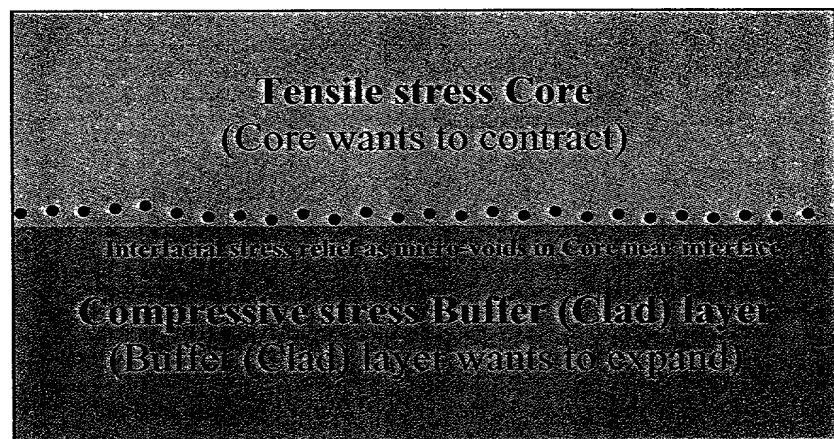


Figure 16

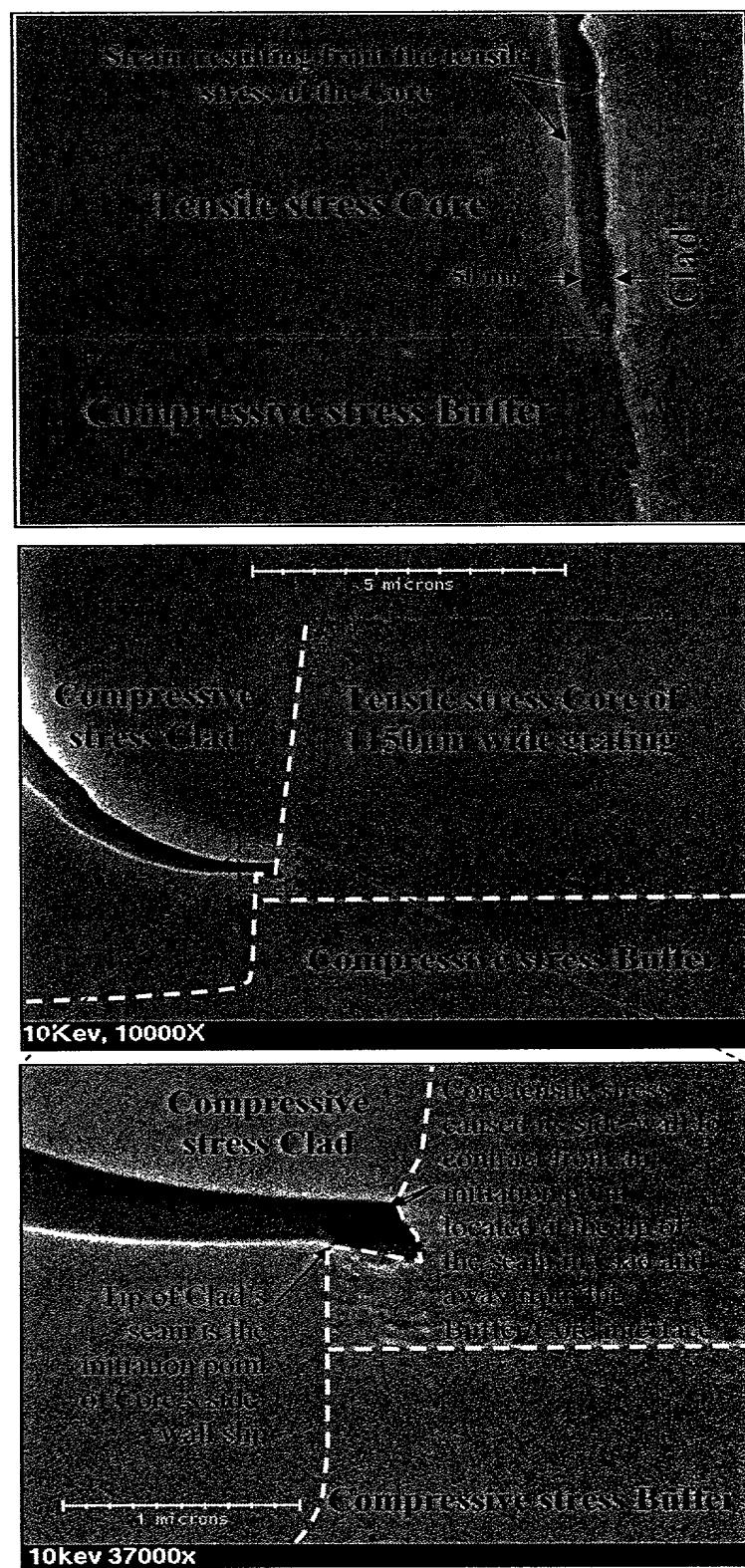
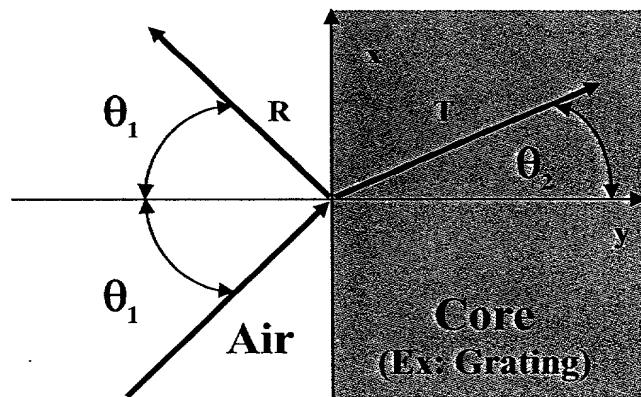
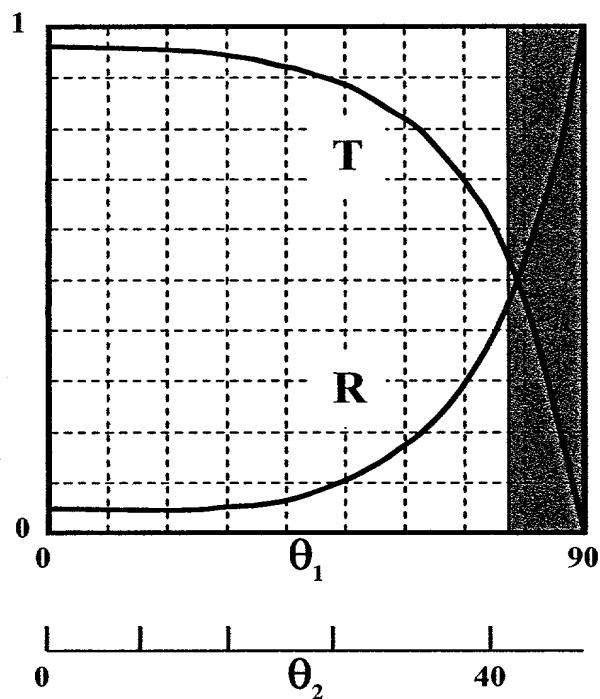


Figure 17



Electric Field \perp Plane of Incidence



Electric Field // Plane of Incidence

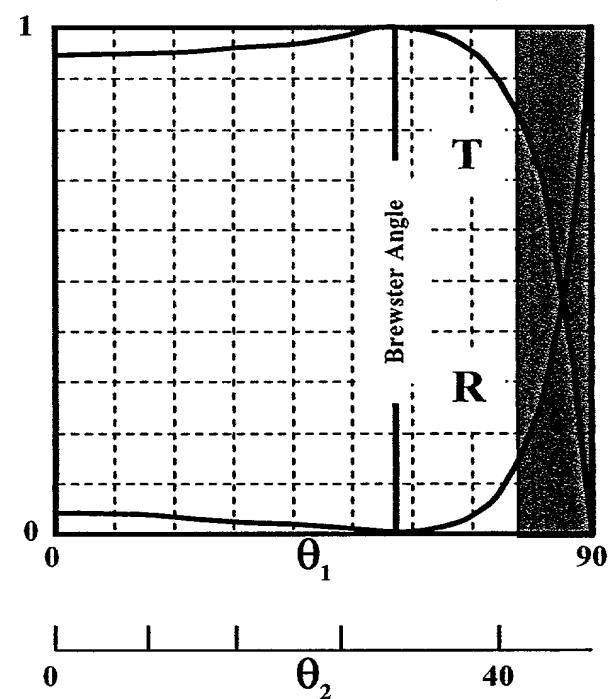
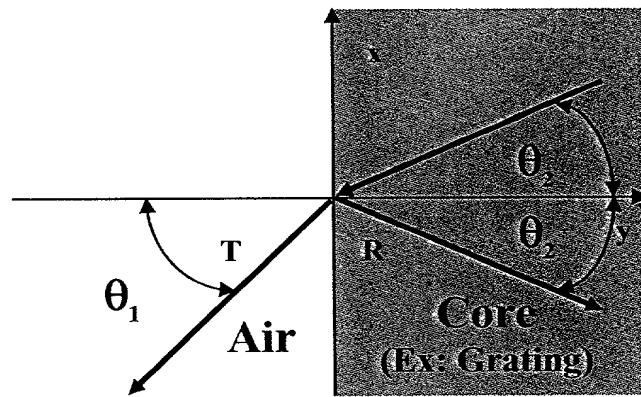
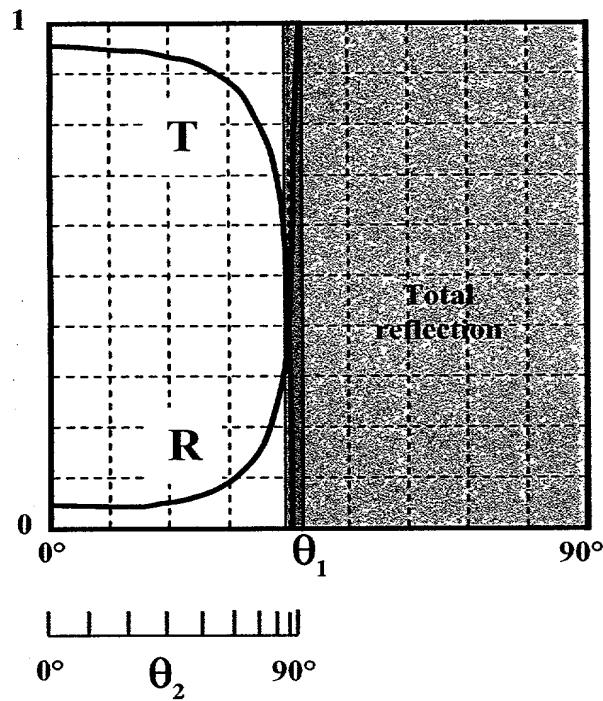


Figure 18



Electric Field \perp Plane of Incidence



Electric Field // Plane of Incidence

